2018
Florida Morbidity Statistics Report

To protect, promote & improve the health of all people in Florida through integrated state, county, & community efforts.

Published MONTH 2021

Report Background and Purpose

The *Florida Morbidity Statistics Report* is the official record of the occurrence of reportable diseases in Florida and this edition marks the 63rd publication since 1945. Numerous reports describing disease burden are produced throughout the year while investigations are ongoing. This report is noteworthy as the data contained here are final, with a few exceptions. Most notably, deduplication of HIV and AIDS cases continues after the publication of this report so numbers in future reports may change. The mission of the Florida Department of Health (Department) is to protect, promote, and improve the health of all people in Florida through integrated state, county, and community efforts. Per section 381.0031, Florida Statutes, "The Department shall conduct a communicable disease prevention and control program as part of fulfilling its public health mission." This report directly supports the Department's mission by identifying patterns and trends in the incidence of disease that are used as the scientific basis for development of disease control and prevention strategies and policies.

The Bureau of Epidemiology thanks all program areas within the Department that contributed to this report, including the sections of HIV/AIDS, Immunization, Sexually Transmitted Diseases (STDs) and Viral Hepatitis, and Tuberculosis Control. Finally, many thanks are extended to the county health department staff and other public health professionals who are involved in reportable disease surveillance, either through disease control activities, case investigations, data collection, laboratory testing, or other essential functions.

Disease control and prevention are core functions of any public health agency. Protection of the public's health from existing, emerging, and re-emerging diseases requires diligence in all aspects of public health. The public health partners identifying and characterizing emerging trends in disease are the physicians, nurses, laboratorians, hospital infection preventionists, and other health care professionals who participate in reportable disease surveillance. Without their participation, the ability to recognize and intervene in emerging public health issues would be much more limited.

The *Florida Morbidity Statistics Report* is compiled in a single reference document to:

- Summarize annual morbidity from reportable communicable diseases and diseases of environmental origin in Florida.
- Describe patterns of disease that can be assessed over time, compared with trends from other states, and act as an aid in directing future disease prevention and control efforts.
- Provide a resource to medical and public health authorities at county, state, and national levels.
- Serve as the final data record, describing cases and morbidity once investigations are closed and data reconciliation with the Centers for Disease Control and Prevention (CDC) is complete.

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Data Summaries for Reportable Diseases and Conditions

Section 1

Florida HEALTH

Campylobacteriosis

Key Points

Campylobacteriosis is the most common bacterial cause of diarrheal illness in the U.S. The Centers for Disease Control and Prevention estimates that *Campylobacter* infection affects at least 1.5 million U.S. residents each year. While most cases are not part of recognized outbreaks, outbreaks in the U.S. have historically been associated with poultry, raw (unpasteurized) dairy products, seafood, produce, untreated water, puppies and live poultry.

The use of culture-independent diagnostic testing (CIDT) to identify *Campylobacter* has increased dramatically in recent years. Florida changed the campylobacteriosis surveillance case definition in January and July 2011, January 2015 and January 2017 to account for CIDTs, increasing the number of reported cases in each of those years.

Campylobacteriosis occurs year-round in Florida, with a slight seasonal increase in spring and summer. Campylobacteriosis incidence is consistently highest in infants <1 year old, followed by children 1 to 4 years old.

Disease Facts

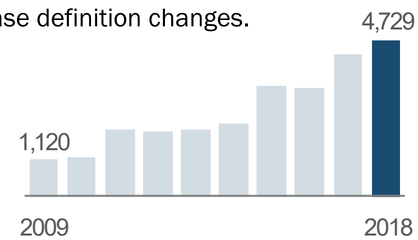
Caused by *Campylobacter* bacteria

Illness is gastroenteritis (diarrhea, vomiting)

Transmitted via fecal-oral route, including person to person, animal to person, foodborne and waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor incidence over time, estimate burden of illness

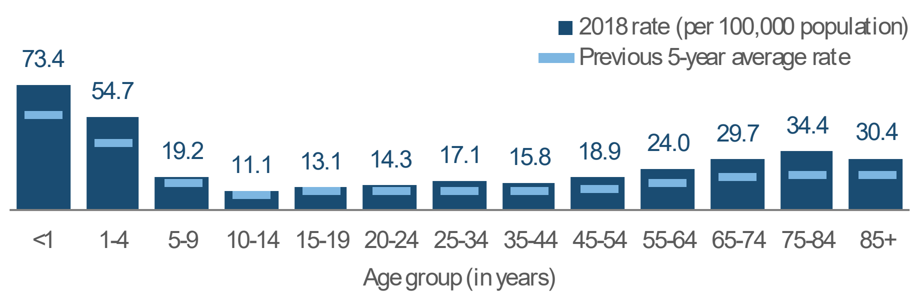
Campylobacteriosis incidence has increased over the past 10 years. Notable increases in 2011, 2015 and 2017 are primarily due to case definition changes.



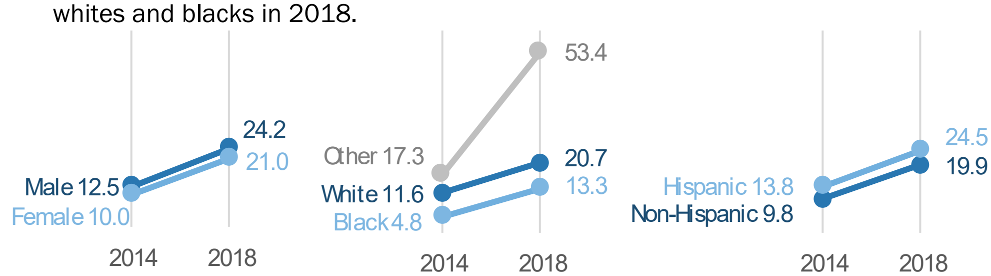
Disease Trends

Summary			
Number of cases			4,729
Rate (per 100,000 population)			22.6
Change from 5-year average rate			+49.1%
Age (in Years)			
Mean			43
Median			48
Min-max			0 - 100
Gender	**Number**	**(Percent)**	**Rate**
Female	2,248	(47.5)	21.0
Male	2,481	(52.5)	24.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	3,358	(75.2)	20.7
Black	472	(10.6)	13.3
Other	635	(14.2)	53.4
Unknown race	264		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	3,097	(70.1)	19.9
Hispanic	1,320	(29.9)	24.5
Unknown ethnicity	312		

The campylobacteriosis rate (per 100,000 population) is highest in infants <1 year old and children 1 to 4 years old, followed by adults 75 years and older.



The campylobacteriosis rate (per 100,000 population) increased in all demographics from 2014 to 2018, particularly in other races. The rates are slightly higher in males, whites and Hispanics compared to females, blacks and non-Hispanics in 2018. The rate was notably higher in other races compared to whites and blacks in 2018.

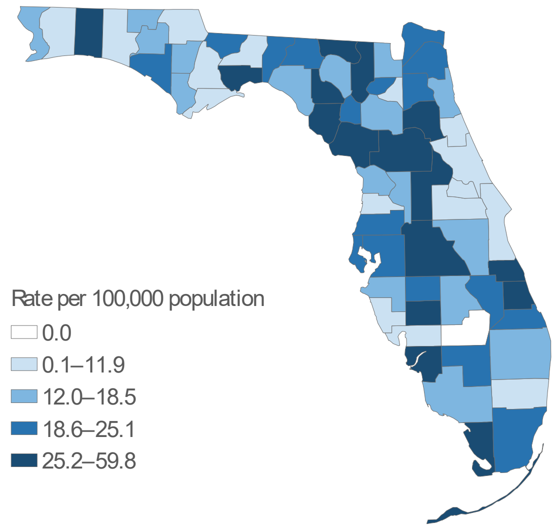


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Campylobacteriosis cases were missing 6.6% of ethnicity data in 2018 and 5.6% of race data in 2018.

Campylobacteriosis

Summary	Number
Number of cases	4,729
Case Classification	**Number (Percent)**
Confirmed	1,401 (29.6)
Probable	3,328 (70.4)
Outcome	**Number (Percent)**
Hospitalized	1,706 (36.1)
Died	19 (0.4)
Sensitive Situation	**Number (Percent)**
Daycare	151 (3.2)
Health care	73 (1.5)
Food handler	49 (1.0)
Imported Status	**Number (Percent)**
Acquired in Florida	3,790 (90.7)
Acquired in the U.S., not Florida	84 (2.0)
Acquired outside the U.S.	304 (7.3)
Acquired location unknown	551
Outbreak Status	**Number (Percent)**
Sporadic	4,242 (91.8)
Outbreak-associated	379 (8.2)
Outbreak status unknown	108

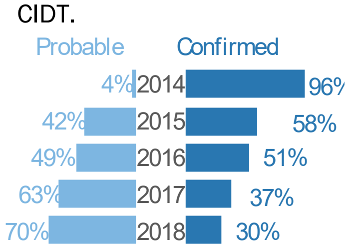
Campylobacteriosis occurs throughout the state. In 2018, rates (per 100,000 population) were highest in small, rural counties, particularly in the north central part of the state.



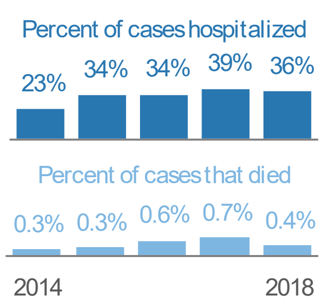
Rates are by county of residence for infections acquired in Florida (3,790 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

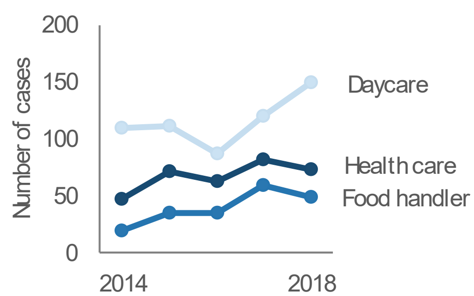
The percentage of probable cases began increasing in 2015 due to case definition changes and increased use of CIDT.



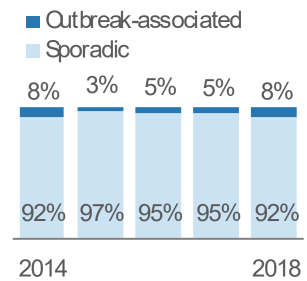
Between 20 and 40% of cases are hospitalized each year. Very few cases die.



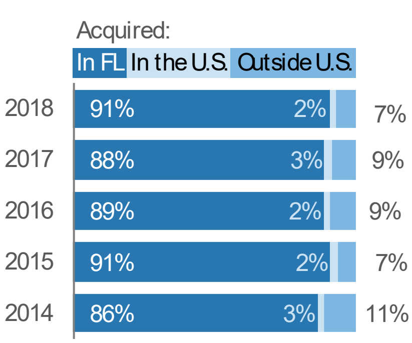
Cases in sensitive situations are monitored. No outbreaks have been identified in these settings in recent years.



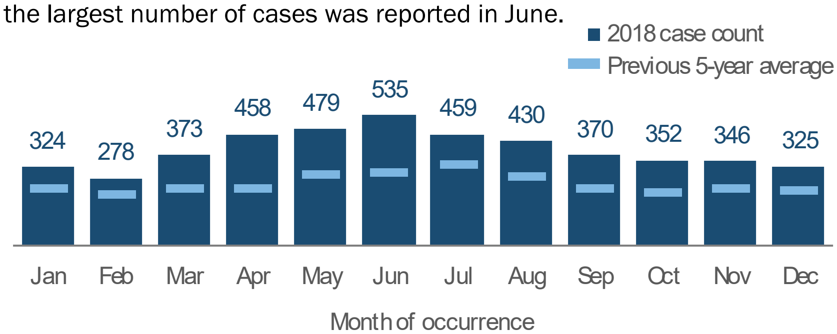
Most cases are sporadic; less than 10% are outbreak -associated and often reflect household clusters.



Most cases are acquired in Florida; a small number of cases are imported from other states and countries.



Campylobacteriosis occurred throughout 2018, though cases were slightly higher in spring and summer, which is consistent with past years. In 2018, the largest number of cases was reported in June.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Carbon Monoxide Poisoning

Key Points

In 2017, a large increase in CO poisoning cases occurred after Hurricane Irma, a category 4 storm, made landfall in Florida on September 10, causing extensive power outages and generator use throughout the state. A total of 359 confirmed or probable cases were associated with exposures related to Hurricane Irma; an additional 170 suspect cases were also identified.

In 2018, Hurricane Michael, a category 5 storm, made landfall in the Florida Panhandle on October 10, also causing extensive power outages and generator use in the area. However, only two sporadic confirmed or probable cases associated with inappropriate generator use after Hurricane Michael were reported. An additional 17 suspect cases were also identified. The fewer number of cases associated with Hurricane Michael reflects the smaller population of impacted counties compared to counties affected by Hurricane Irma.

The most commonly identified exposures for 2018 cases were automobile and recreational vehicles (RVs) (20%), generators (19%), fuel-burning appliances (16%) and fires (14%).

Disease Facts

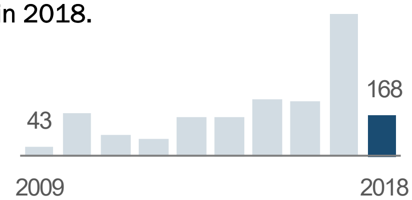
Caused by carbon monoxide (CO) gas

Illness includes headache, dizziness, weakness, nausea, vomiting, chest pain and confusion; high levels of CO inhalation can cause loss of consciousness and death

Exposure to CO gas is from combustion fumes (produced by cars and trucks, generators, stoves, lanterns, burning charcoal and wood, and gas ranges and heating systems)

Under surveillance to identify and mitigate persistent sources of exposure, identify populations at risk, evaluate trends in environmental conditions, measure impact of public health interventions

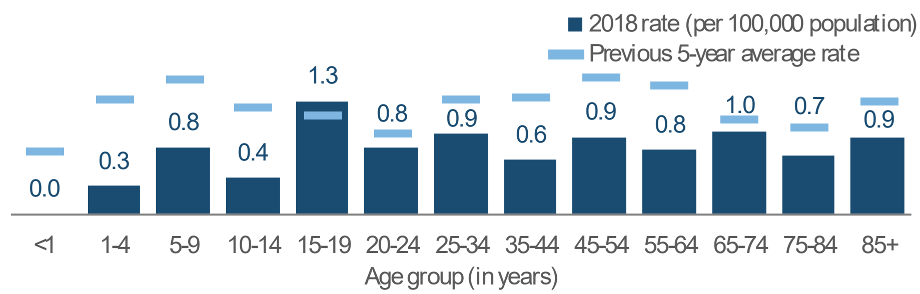
After the sharp increase in 2017 as a result of Hurricane Irma, CO poisoning incidence returned to an average level in 2018.



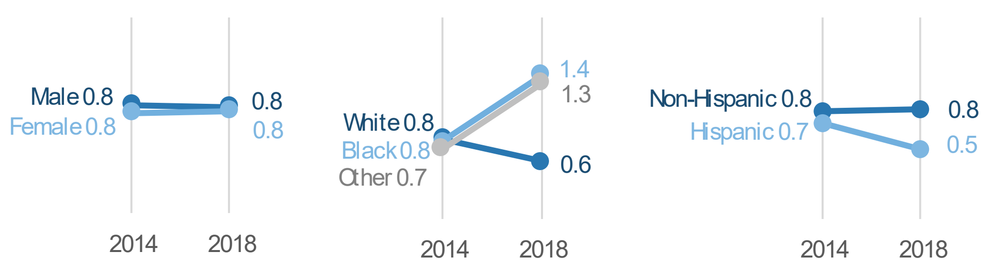
Disease Trends

Summary			
Number of cases			168
Rate (per 100,000 population)			0.8
Change from 5-year average rate			-39.9%
Age (in Years)			
Mean			43
Median			43
Min-max			3 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	84	(50.0)	0.8
Male	84	(50.0)	0.8
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	93	(58.1)	0.6
Black	51	(31.9)	1.4
Other	16	(10.0)	NA
Unknown race	8		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	127	(81.9)	0.8
Hispanic	28	(18.1)	0.5
Unknown ethnicity	13		

In 2018, the CO poisoning rate (per 100,000 population) was highest in adolescents 15 to 19 years old and adults 65 to 74 years old. In past years, the rate was highest in adults 25 to 45 years old. The difference seen in the previous 5-year average rate is likely being driven by the spike in cases in 2017.



In 2018, CO poisoning rates (per 100,000 population) were the same for gender groups, but slightly higher in non-Hispanics and notably higher in blacks and other races. While the rates decreased slightly in whites and Hispanics over the past five years, rates increased in blacks and other races over the same time period.

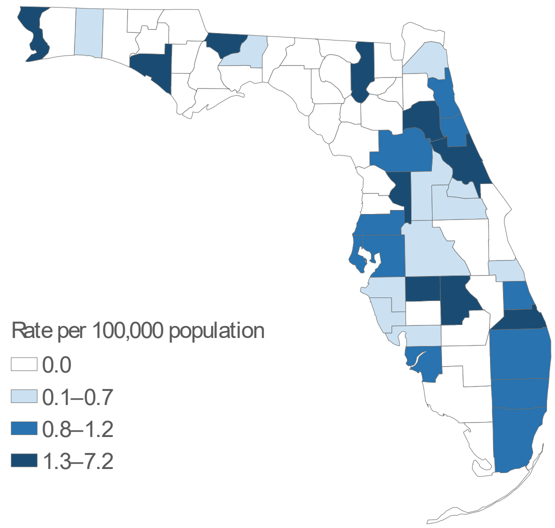


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Carbon monoxide poisoning cases were missing 7.7% of ethnicity data in 2018.

Carbon Monoxide Poisoning

Summary	Number
Number of cases	168
Case Classification	**Number (Percent)**
Confirmed	142 (84.5)
Probable	26 (15.5)
Outcome	**Number (Percent)**
Hospitalized	62 (36.9)
Died	7 (4.2)
Imported Status	**Number (Percent)**
Exposed in Florida	167 (100.0)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	0 (0.0)
Exposed location unknown	1
Outbreak Status	**Number (Percent)**
Sporadic	89 (53.0)
Outbreak-associated	79 (47.0)
Outbreak status unknown	0
Exposure Type	**Number (Percent)**
Automobile/RV	34 (20.2)
Generator	31 (18.5)
Fuel-burning appliance	27 (16.1)
Fire	24 (14.3)
Other	35 (20.8)
Unknown	17 (10.1)

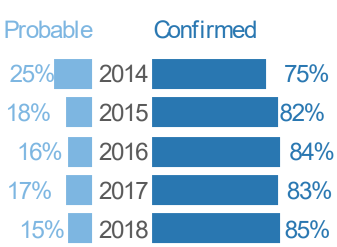
Carbon monoxide poisonings in 2018 were concentrated in northeast, central and southeast Florida. Rates (per 100,000) were highest in small, rural counties throughout the state.



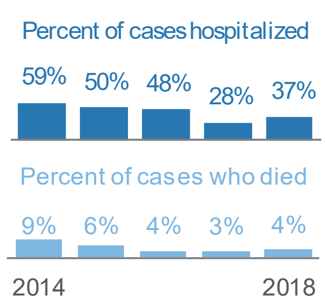
Rates are by county of residence for cases exposed in Florida (167 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

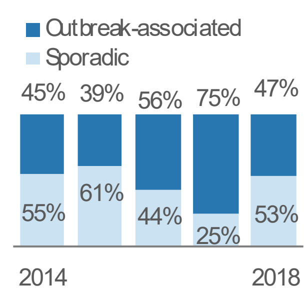
Most CO poisoning cases are confirmed. In 2018, 85% of cases were confirmed.



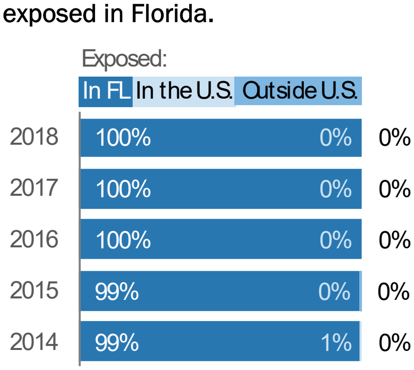
Between 25 and 60% of cases are hospitalized each year; deaths do occur.



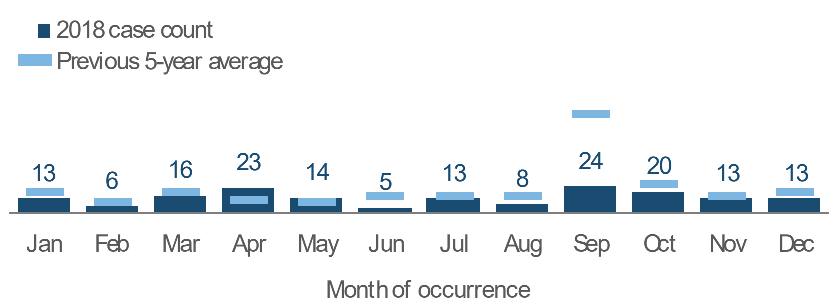
About half (47%) of CO poisoning cases were linked to at least one other case in 2018. Over half of these cases were associated with exposure to automobile (23 cases) or generator (19 cases) exhaust. Two distinct outbreaks (seven and five cases each) were identified in Miami-Dade County; both occurred in a school cafeteria and were caused by faulty exhaust.



Almost all CO poisoning cases are exposed in Florida.



CO poisoning cases were highest in April and September in 2018. Historically, CO poisonings tend to increase during cold winter months and during large power outages.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Chlamydia (Excluding Neonatal Conjunctivitis)

Key Points

Chlamydia is the most commonly reported sexually transmitted disease in Florida and the U.S.; incidence rates have been slowly increasing over the past decade. Incidence is highest among females 20 to 24 years old and non-Hispanic blacks. If untreated, chlamydia can lead to serious reproductive complications and can make it difficult for females to conceive. As the infection is frequently asymptomatic, screening is necessary to identify most infections; early detection and treatment can prevent sequelae.

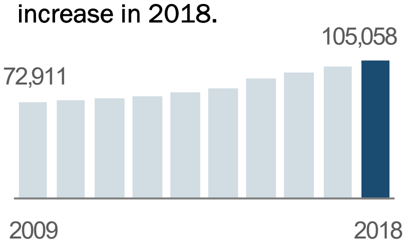
The rate of chlamydia in races other than white and black has increased over the past 10 years, particularly in the past four years. The rate has decreased in non-Hispanic blacks, primarily driven by a decrease in infections in young black females.

Disease Facts

- Caused by *Chlamydia trachomatis* bacteria
- Illness is frequently asymptomatic; abnormal discharge from vagina or penis, burning sensation when urinating; severe complications can include pelvic inflammatory disease, infertility and ectopic pregnancies
- Transmitted sexually via vaginal, anal or oral sex and sometimes from mother to child during pregnancy or delivery
- Under surveillance to implement interventions immediately for every case, monitor incidence over time, estimate burden of illness, target prevention education programs, evaluate treatment and prevention programs

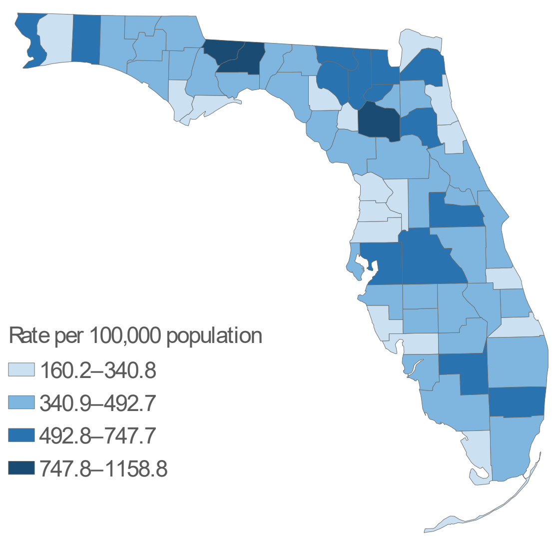
Disease Trends

Chlamydia incidence continued to increase in 2018.



Summary			
Number of cases			105,058
Rate (per 100,000 population)			501.3
Change from 5-year average rate			+11.2%
Age (in Years)			
Mean			25
Median			22
Min-max			5 - 99
Gender	**Number**	**(Percent)**	**Rate**
Female	68,691	(65.4)	641.2
Male	36,339	(34.6)	354.7
Unknown gender	28		
Race	**Number**	**(Percent)**	**Rate**
White	34,451	(40.2)	212.4
Black	35,581	(41.5)	1002.4
Other	15,649	(18.3)	1316.7
Unknown race	19,377		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	63,020	(79.2)	404.9
Hispanic	16,557	(20.8)	307.0
Unknown ethnicity	25,481		

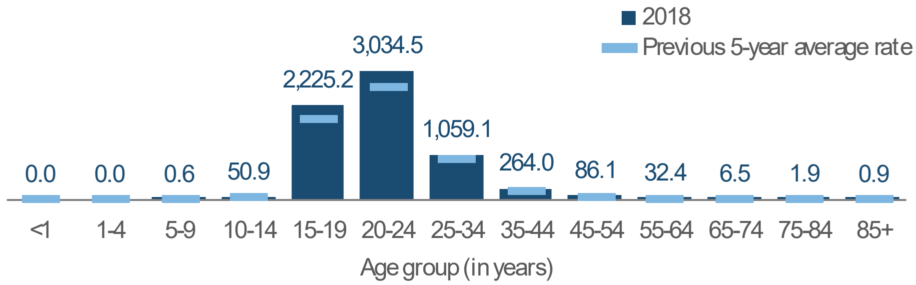
Chlamydia occurs throughout the state. The highest rates (per 100,000 population) in 2018 were in Leon (1,158.8), Gadsden (1,002.6), Alachua (938.8), Duval (747.7) and Orange (724.2) counties. These counties accounted for 22% of the state's cases, but only 14% of the state's population. The largest number of cases were reported in Miami-Dade (13,415 cases) and Broward (11,347 cases) counties. These two counties accounted for 24% of the state's cases and 22% of the state's population.



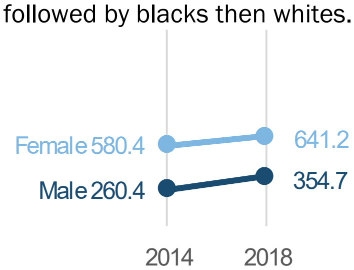
Rates are by county of residence, regardless of where infection was acquired (105,058 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

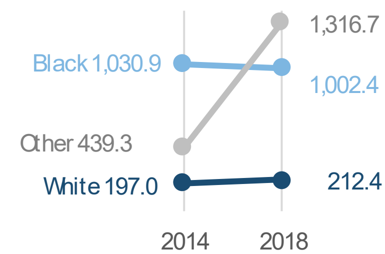
Chlamydia (Excluding Neonatal Conjunctivitis)

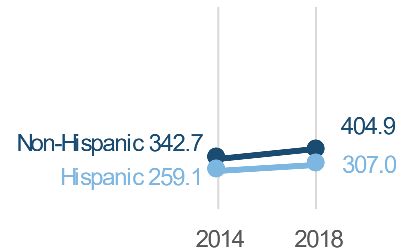
Chlamydia rates (per 100,000 population) are highest in adults 20 to 24 years old, followed by teenagers 15 to 19 years old. Rates in adults rapidly decrease with age. The rate in adults 20 to 24 years old is more than 10 times the rate in adults 35 to 44 years old and more than 35 times the rate in adults 45 to 54 years old.



Chlamydia rates (per 100,000 population) have increased in all gender, race and ethnicity groups from 2014 to 2018, except in blacks where it decreased slightly. The rate in other races almost tripled in that time, and now that group has the highest rate, followed by blacks then whites.







Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Chlamydia cases (excluding neonatal conjunctivitis) w ere missing 23.9% of ethnicity data in 2014, 17.7% of race data in 2014, 24.3% of ethnicity data in 2018 and 18.4% of race data in 2018.

Chlamydia rates (per 100,000 population) are highest in adults 20 to 24 years old, followed by teenagers 15 to 19 years old. Overall, rates have increased in males in both age groups and in females 20 to 24 years old. The rate in both age groups in black females has decreased over the past 10 years. The rates in other races in both age groups and both genders have increased steadily, as have rates in Hispanic males in both age groups.

Females 15–19 years old

	2009 rate	10-year trend	2018 rate
Total	**2,795.8**		**2,502.2**
White	784.3		774.0
Black	1,612.1		962.9
Hispanic	341.1		455.0
Other	58.3		310.3

Males 15–19 years old

	2009 rate	10-year trend	2018 rate
Total	**639.6**		**764.1**
White	117.5		154.2
Black	441.8		404.2
Hispanic	67.6		114.4
Other	12.7		91.3

Females 20–24 years old

	2009 rate	10-year trend	2018 rate
Total	**2,729.5**		**3,174.6**
White	810.1		995.1
Black	1,463.7		1,212.5
Hispanic	391.7		590.6
Other	64.0		376.4

Males 20–24 years old

	2009 rate	10-year trend	2018 rate
Total	**1,104.9**		**1,400.9**
White	252.4		363.3
Black	675.1		617.2
Hispanic	148.2		254.6
Other	29.2		165.8

Ciguatera Fish Poisoning

Key Points

Ciguatoxin is produced by dinoflagellates in the genus *Gambierdiscus*. Marine dinoflagellates are typically found in tropical and subtropical waters and are eaten by herbivorous fish that are in turn eaten by larger carnivorous fish, causing the toxins to bioaccumulate in larger fish such as barracuda or grouper. While case finding in Florida is thought to be more complete than in other states, under-reporting is still likely due to lack of recognition and reporting by medical practitioners.

Single cases of ciguatera fish poisoning warrant a full investigation and are generally characterized as outbreaks for public health purposes. Prior to 2015, all cases were classified as outbreak-associated for this report. Starting in 2015, cases were only classified as outbreak-associated for this report when at least two or more people had a common exposure. Forty-eight investigations occurred in 2018 involving 74 cases, of which 68 cases were in Florida residents and six cases were in non-Florida residents. One Florida resident case reported in 2018 was associated with an investigation that occurred in 2017. Investigations involved an average of 1.6 cases with a range of one to five cases. The most common fish consumed was barracuda. Cases were most commonly associated with recreationally harvested fish. In 2018, cases were investigated throughout the year, with the largest number of cases occurring in February, June, July and September.

Disease Facts

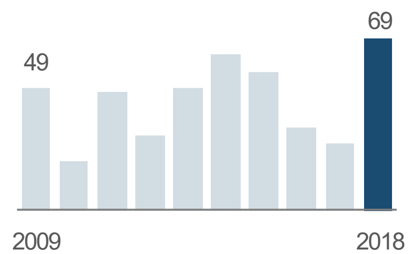
Caused by ciguatoxins produced by marine dinoflagellates (associated with tropical fish)

Illness includes nausea, vomiting and neurologic symptoms (e.g., tingling fingers or toes, temperature reversal); anecdotal evidence of long-term periodic recurring symptoms

Exposed through consuming fish containing ciguatoxins

Under surveillance to identify and control outbreaks, identify high-risk products (e.g., barracuda, grouper)

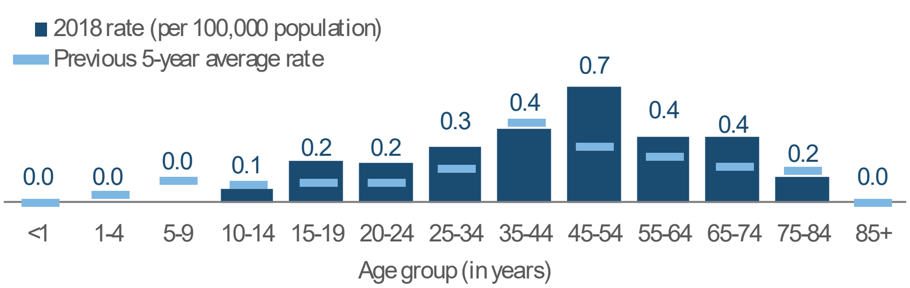
More ciguatera fish poisoning cases were reported in 2018 than any year since 2009.



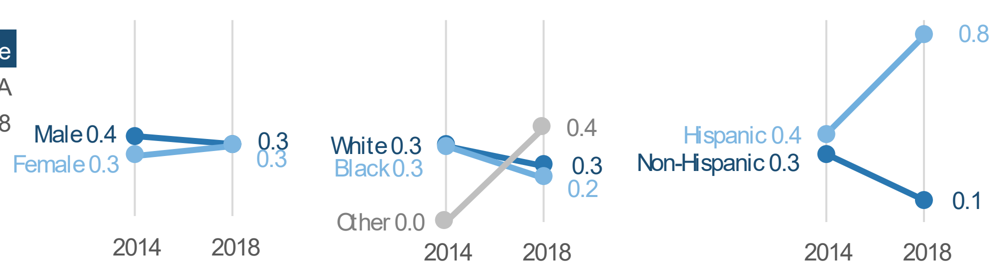
Disease Trends

Summary		
Number of cases		69
Rate (per 100,000 population)		0.3
Change from 5-year average rate		+43.0%
Age (in Years)		
Mean		47
Median		48
Min-max		13 - 78
Gender	**Number (Percent)**	**Rate**
Female	35 (50.7)	0.3
Male	34 (49.3)	0.3
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	41 (77.4)	0.3
Black	7 (13.2)	NA
Other	5 (9.4)	NA
Unknown race	16	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	15 (25.0)	NA
Hispanic	45 (75.0)	0.8
Unknown ethnicity	9	

The ciguatera fish poisoning rate (per 100,000 population) is generally highest in adults aged 25 to 74 years. In 2018, 65 cases were reported in adults and three cases were reported in teenagers. Age was unknown for one case.



The ciguatera fish poisoning rate (per 100,000 population) is generally similar in males and females as well as in whites and blacks. The rate was slightly higher in other races and notably higher in Hispanics in 2018.

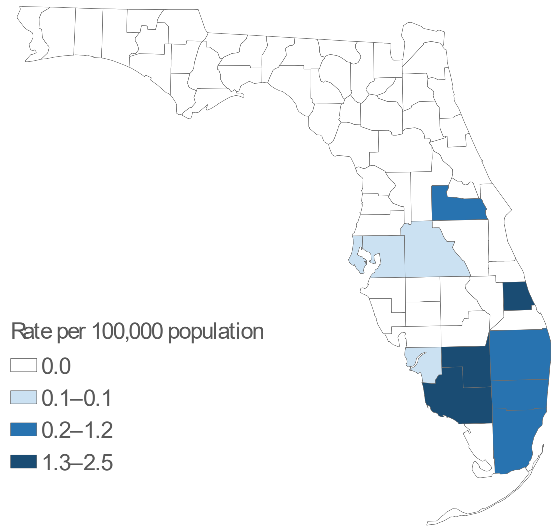


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Ciguatera fish poisoning cases were missing 13.0% of ethnicity data in 2018 and 23.2% of race data in 2018.

Ciguatera Fish Poisoning

Summary	Number
Number of cases	69
Outcome	**Number (Percent)**
Hospitalized	11 (15.9)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	61 (89.7)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	7 (10.3)
Exposed location unknown	1
Outbreak Status	**Number (Percent)**
Sporadic	31 (44.9)
Outbreak-associated	38 (55.1)
Outbreak status unknown	0

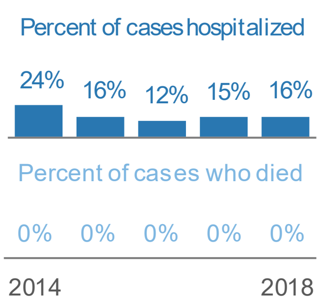
Ciguatera fish poisoning cases tend to occur in coastal counties, particularly in south Florida. In 2018, the rate per 100,000 population was highest in Hendry County (one case); Miami-Dade County accounted for just over half of all cases (38).



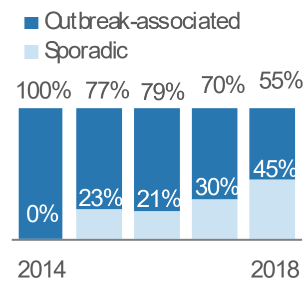
Rates are by county of residence for cases exposed in Florida (61 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

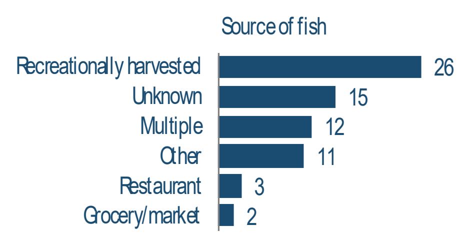
Less than 25% of cases are hospitalized. No deaths have been identified in recent years.



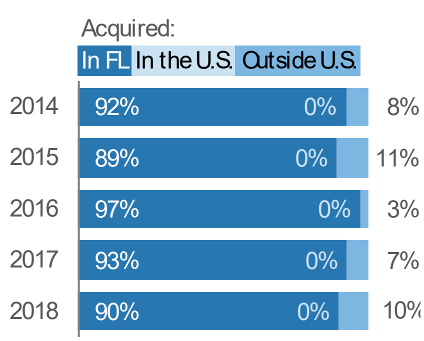
Most cases are outbreak-associated. Implicated fish are commonly shared by multiple people.



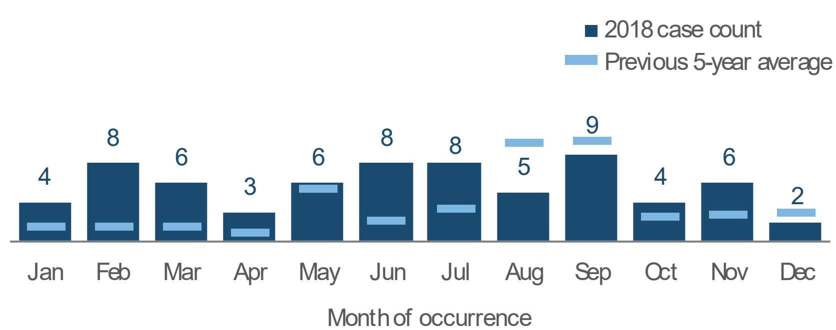
Most fish causing ciguatera fish poisoning were recreationally harvested. Frequently, multiple sources of fish are identified, and occasionally, no source can be identified.



More than 85% of cases are exposed in Florida each year.



Ciguatera fish poisoning generally peaks in August and September. However, more cases were identified in February, June, July and September in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Cryptosporidiosis

Key Points

During the past two decades, *Cryptosporidium* has become recognized as one of the most common causes of waterborne disease (recreational water and drinking water) in humans in the U.S. Diagnostic capabilities have improved over the years, making it easier to identify illnesses caused by this parasite.

Cryptosporidiosis in Florida and the U.S. has a seasonal and cyclical trend. Following a sharp increase in cases in 2014 in all genders, races and ethnicities, cases have generally decreased. Cryptosporidiosis incidence is consistently highest in children 1 to 4 years old.

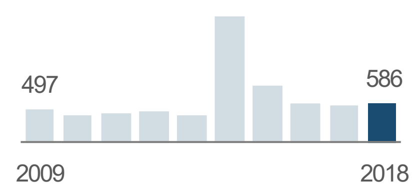
Disease Facts

- **Caused** by *Cryptosporidium* parasites
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person to person, animal to person, waterborne and foodborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food/water source, ill food handler), monitor incidence over time, estimate burden of illness

Cryptosporidiosis incidence peaked in 2014 when there were six waterborne outbreaks investigated, including 134 cases associated with swimming pools, a recreational water park and kiddie pools. Additional community-wide outbreaks in 2014 were associated with person-to-person transmission and daycares.

There were two waterborne disease outbreaks due to *Cryptosporidium* in 2018. One outbreak (seven cases) was associated with recreational water at a natural spring while the second outbreak (seven cases) implicated a splash park as the source. There was one person-to-person outbreak (11 cases) in 2018 associated with a child care facility. Other reported clusters of illness were associated with person-to-person transmission, travel and daycares.

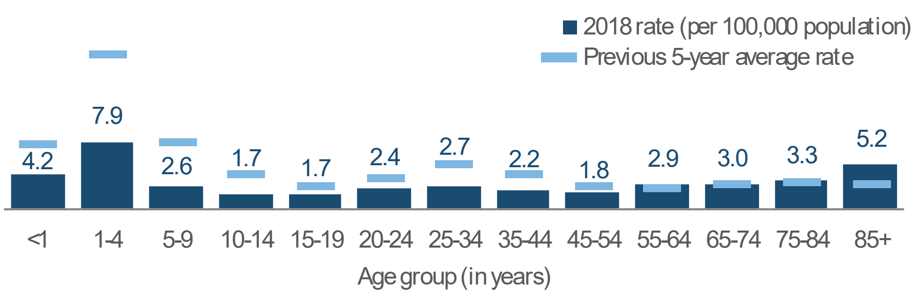
Cryptosporidiosis incidence increased sharply in 2014, decreased in 2015 and 2016, and has remained relatively stable since.



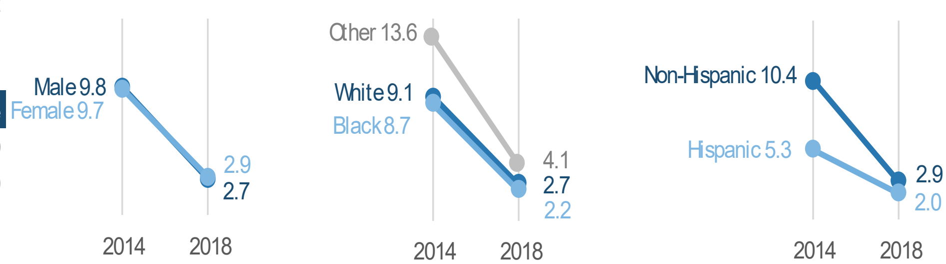
Disease Trends

Summary			
Number of cases			586
Rate (per 100,000 population)			2.8
Change from 5-year average rate			-35.7%
Age (in Years)			
Mean			41
Median			41
Min-max			0 - 102
Gender	**Number**	**(Percent)**	**Rate**
Female	309	(52.7)	2.9
Male	277	(47.3)	2.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	435	(77.3)	2.7
Black	79	(14.0)	2.2
Other	49	(8.7)	4.1
Unknown race	23		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	449	(80.8)	2.9
Hispanic	107	(19.2)	2.0
Unknown ethnicity	30		

The cryptosporidiosis rate (per 100,000 population) is consistently highest in children 1 to 4 years old, which remained true in 2018.



The cryptosporidiosis rate (per 100,000 population) decreased among all demographics from 2014 to 2018. Rates were similar by gender, race and ethnicity in 2018, with the exception of other races, which was higher.

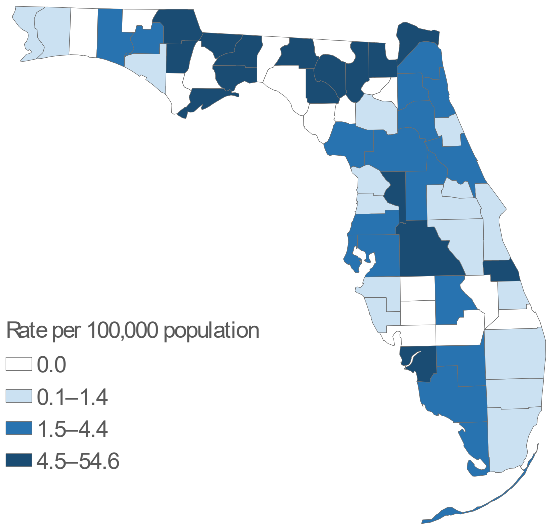


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Cryptosporidiosis cases were missing 5.2% of ethnicity data in 2014 and 5.1% of ethnicity data in 2018.

Cryptosporidiosis

Summary	Number
Number of cases	586
Case Classification	**Number (Percent)**
Confirmed	250 (42.7)
Probable	336 (57.3)
Outcome	**Number (Percent)**
Hospitalized	217 (37.0)
Died	1 (0.2)
Sensitive Situation	**Number (Percent)**
Daycare	42 (7.2)
Health care	13 (2.2)
Food handler	13 (2.2)
Imported Status	**Number (Percent)**
Acquired in Florida	472 (91.1)
Acquired in the U.S., not Florida	5 (1.0)
Acquired outside the U.S.	41 (7.9)
Acquired location unknown	68
Outbreak Status	**Number (Percent)**
Sporadic	495 (84.5)
Outbreak-associated	91 (15.5)
Outbreak status unknown	0

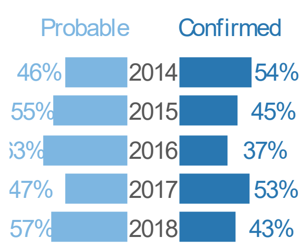
Cryptosporidiosis occurs throughout the state. The highest rates (per 100,000) in 2018 generally occurred in small, rural counties with lower rates in many of the large, metropolitan areas of the state.



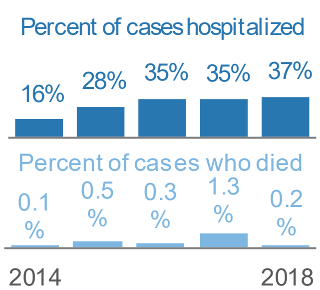
Rates are by county of residence for infections acquired in Florida (472 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

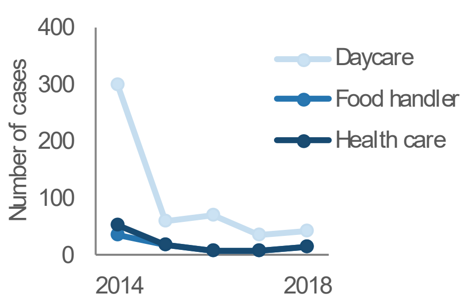
Unlike many other reportable diseases, only about half of cryptosporidiosis cases are confirmed.



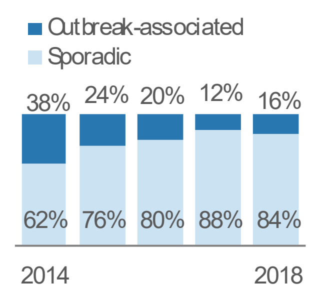
Hospitalizations and deaths are typically related to underlying conditions and comorbidities.



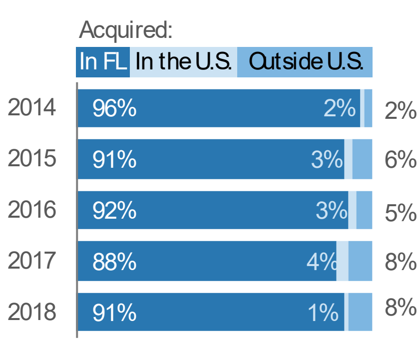
Many of the 2014 cases occurred in daycare settings. People in sensitive situations may pose a risk for transmitting infection to others.



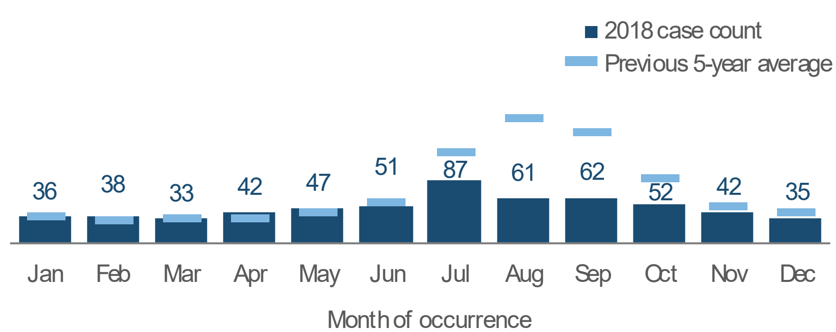
Most cryptosporidiosis case are sporadic. Only 16% were outbreak-associated in 2018.



Most cryptosporidiosis infections are acquired within Florida.



Cryptosporidiosis cases peak in the summer and early fall months, similar to other enteric diseases.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Cyclosporiasis

Key Points

Incidence is strongly seasonal, peaking annually in June and July. Large multistate outbreaks of cyclosporiasis were identified in 2013, 2014, 2015 and 2018. In the U.S., cyclosporiasis outbreaks are primarily foodborne and have been linked to various types of imported fresh produce, including basil, cilantro, mesclun lettuce, raspberries and snow peas.

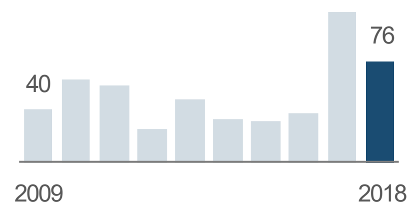
In 2018, 2,299 laboratory-confirmed cases of cyclosporiasis were reported nationally as of October 1, 2018 (the most recent date for which national data were available). These cases were reported by 33 different states, had illness onset from May to August 2018, and had no history of international travel during the 14-day period prior to illness onset. Florida reported 72 (95%) of its 76 cases during this same time period.

The national increase in cases was attributed, in part, to multiple large foodborne outbreaks reported from May to August 2018. Globalization of food distribution typically results in the same products being sold and consumed across the U.S. While cases cannot always be linked to a particular outbreak, Florida's elevated incidence in 2018 is likely a result of the same food products driving the national increase. In 2018, Florida identified one case associated with a multistate outbreak and four cases associated with two in-state household clusters (two cases in each cluster; vehicles unknown).

Disease Facts

- **Caused** by *Cyclospora* parasites
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral, including foodborne and less commonly waterborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product), monitor incidence over time, estimate burden of illness

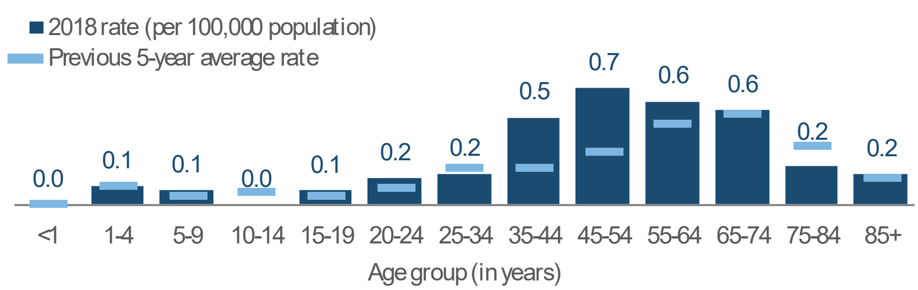
Cyclosporiasis incidence increased sharply in 2017 and remained elevated in 2018.



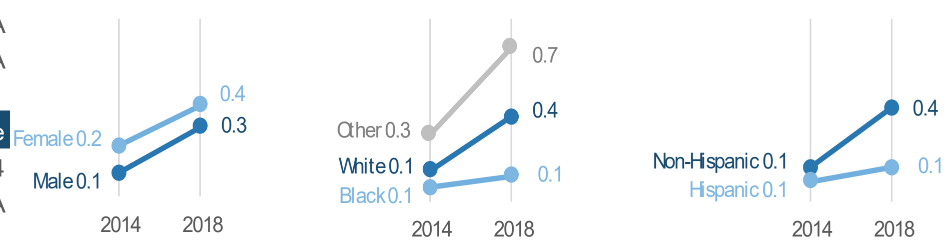
Disease Trends

Summary	Number (Percent)	Rate
Number of cases		76
Rate (per 100,000 population)		0.4
Change from 5-year average rate		+38.9%
Age (in Years)		
Mean		52
Median		54
Min-max		3 - 89
Gender	**Number (Percent)**	**Rate**
Female	44 (57.9)	0.4
Male	32 (42.1)	0.3
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	60 (83.3)	0.4
Black	4 (5.6)	NA
Other	8 (11.1)	NA
Unknown race	4	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	64 (88.9)	0.4
Hispanic	8 (11.1)	NA
Unknown ethnicity	4	

The cyclosporiasis rate (per 100,000 population) is consistently higher in adults ≥25 years old and was particularly high in adults 45 to 54 years old in 2018.



Driven primarily by the larger increase in 2017, cyclosporiasis rates (per 100,000 population) increased in all gender, race and ethnicity groups except blacks and Hispanics from 2014 to 2018. Rates were similar in gender groups, but higher in other races, whites and non-Hispanics in 2018.

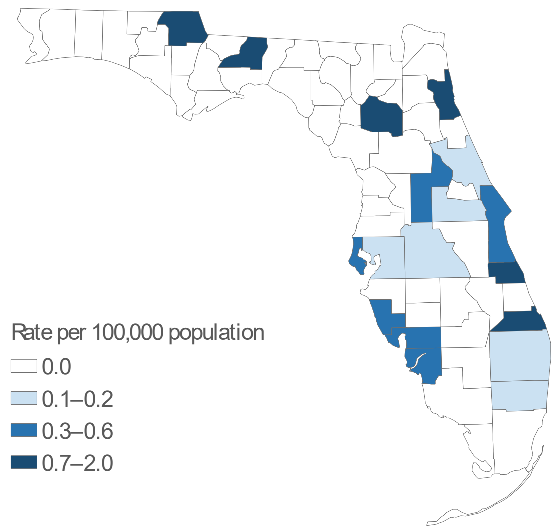


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Cyclosporiasis cases were missing 21.2% of ethnicity data in 2014, 21.2% of race data in 2014, 5.3% of ethnicity data in 2018 and 5.3% of race data in 2018.

Cyclosporiasis

Summary	Number
Number of cases	76
Case Classification	**Number (Percent)**
Confirmed	75 (98.7)
Probable	1 (1.3)
Outcome	**Number (Percent)**
Hospitalized	5 (6.6)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	38 (67.9)
Acquired in the U.S., not Florida	6 (10.7)
Acquired outside the U.S.	12 (21.4)
Acquired location unknown	20
Outbreak Status	**Number (Percent)**
Sporadic	65 (85.5)
Outbreak-associated	5 (6.6)
Outbreak status unknown	6

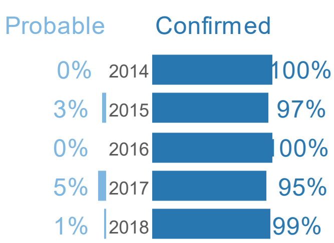
Cyclosporiasis cases occurred primarily in central and south Florida counties in 2018. The rate (per 100,000 population) was highest in Jackson County (one case); Alachua and Lee counties had the most reported cases (four cases each).



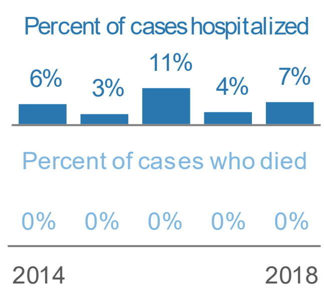
Rates are by county of residence for infections acquired in Florida (38 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

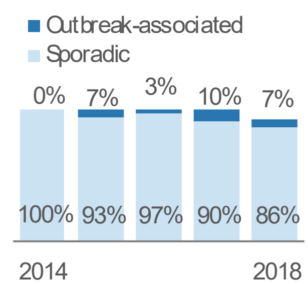
The majority of cyclosporiasis cases are confirmed. Probable cases are symptomatic people epidemiologically linked to confirmed cases.



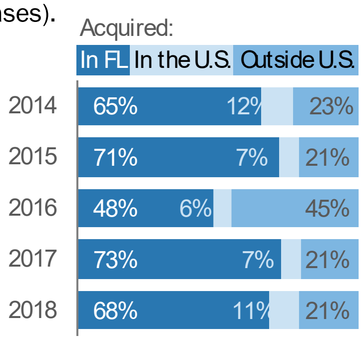
Few cyclosporiasis cases are hospitalized. No deaths have occurred in recent years.



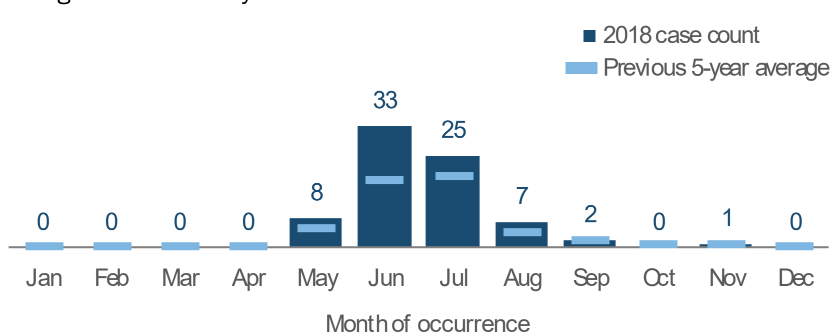
Most cyclosporiasis cases are sporadic. The percentage of outbreak-associated cases decreased to 7% in 2018.



Most cyclosporiasis infections are acquired in Florida. Over half of infections acquired outside the U.S. were from Mexico (seven cases).



Cyclosporiasis has a very strong seasonal pattern with cases primarily occurring May through August, peaking in June and July. Few cases occur during the rest of the year.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Dengue Fever

Key Points

Historically the Americas, primarily the Caribbean, have served as primary sources of dengue virus exposures in Florida residents. However, at least one locally acquired case has been identified each year from 2009 to 2018, with the exception of 2017. Introductions have been primarily in south Florida. Two outbreaks of locally acquired dengue fever have occurred; one in Monroe County (2009 to 2010) and one in Martin County (2013). Dengue fever incidence was abnormally low in 2017 but returned to an average level in 2018.

Infected residents and non-residents who are infectious and bitten by mosquitoes while in Florida could pose a potential risk for introduction of dengue fever; however, cases in non-Florida residents are not included in counts in this report. Four dengue fever cases were identified in non-Florida residents while traveling in Florida in 2018.

Of the 87 cases reported in 2018, two were initially identified in previous years (one case each in 2016 and 2017). The 2016 case was first reported as a confirmed Zika case; additional laboratory testing allowed the person to also be reported as a confirmed dengue fever case. Five additional cases were identified in 2018 but were not reported until 2019 and will therefore be included in the 2019 report. Case counts and rates from this report may differ from those found in other vector-borne disease reports as different criteria are used to assemble the data.

Disease Facts

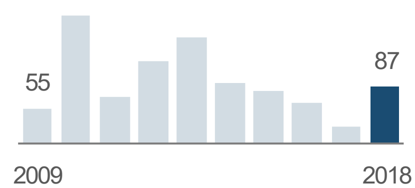
Caused by dengue viruses (DENV-1, DENV-2, DENV-3, DENV-4)

Illness is acute febrile with headache, joint and muscle pain, rash and eye pain; severe dengue (dengue hemorrhagic fever or dengue shock syndrome) symptoms include severe abdominal pain, vomiting and mucosal bleeding

Transmitted via bite of infective mosquito, rarely by blood transfusion or organ transplant

Under surveillance to identify individual cases, implement control measures to prevent introduction and active transmission, monitor incidence over time, estimate burden of illness

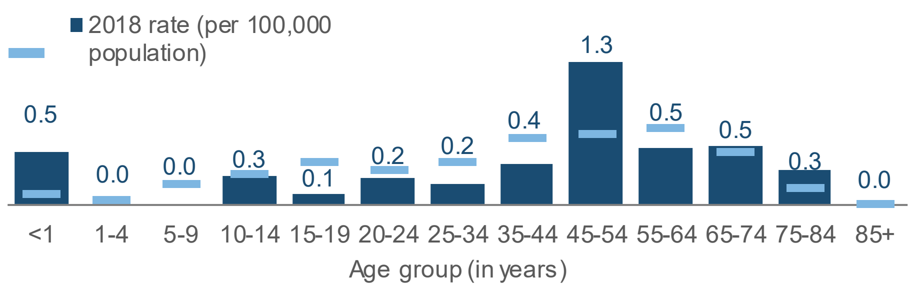
Dengue fever incidence returned to an average level in 2018.



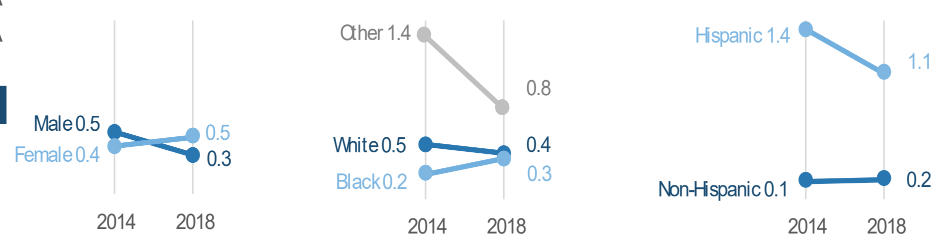
Disease Trends

Summary			
Number of cases			87
Rate (per 100,000 population)			0.4
Change from 5-year average rate			-2.5%
Age (in Years)			
Mean			49
Median			50
Min-max			0 - 77
Gender	**Number**	**(Percent)**	**Rate**
Female	53	(60.9)	0.5
Male	34	(39.1)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	62	(74.7)	0.4
Black	12	(14.5)	NA
Other	9	(10.8)	NA
Unknown race	4		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	26	(31.3)	0.2
Hispanic	57	(68.7)	1.1
Unknown ethnicity	4		

The dengue fever rate (per 100,000 population) has historically been highest in adults 25 to 74 years old. In 2018, the rate was highest in adults 45 to 54 years old; the youngest case was seven months old.



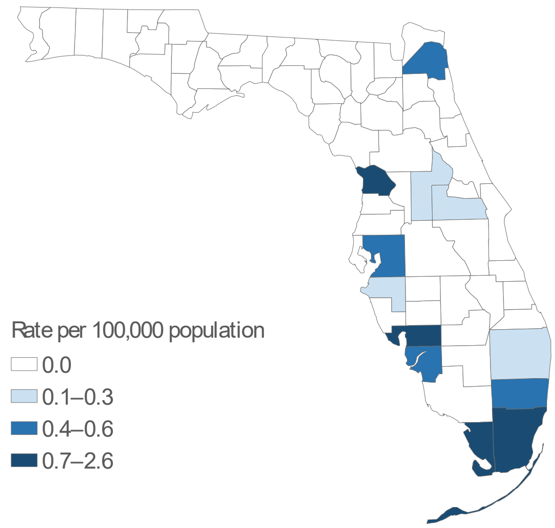
The dengue fever rate (per 100,000 population) is similar in males, females, blacks, whites and non-Hispanics. In 2014, rates were higher in other races and Hispanics, though there was less difference between race and ethnic groups in 2018.



Dengue Fever

Summary	Number
Number of cases	87
Case Classification	**Number (Percent)**
Confirmed	74 (85.1)
Probable	13 (14.9)
Outcome	**Number (Percent)**
Hospitalized	46 (52.9)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	1 (1.1)
Acquired in the U.S., not Florida	1 (1.1)
Acquired outside the U.S.	85 (97.7)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	82 (94.3)
Outbreak-associated	5 (5.7)
Outbreak status unknown	0

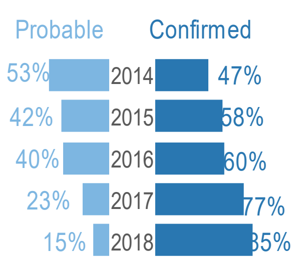
Dengue fever was identified more frequently in Miami-Dade County and Broward County residents in 2018, with 46 cases and 11 cases reported respectively.



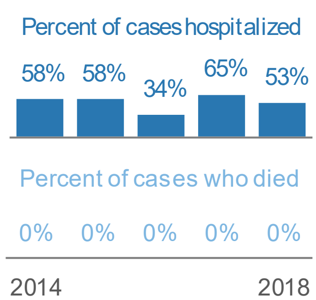
Rates are by county of residence, regardless of where infection was acquired (87 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

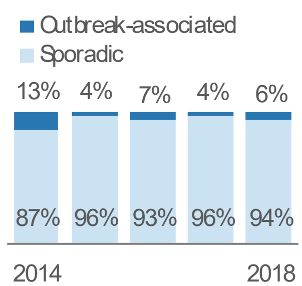
The percentage of confirmed cases was higher in 2018 than in the previous four years.



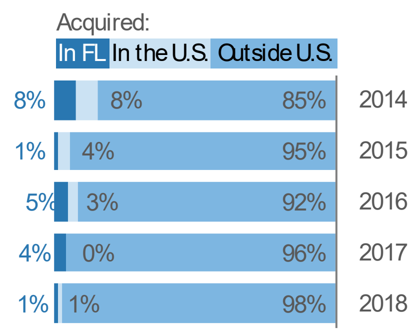
The rate of hospitalization is relatively high, but no deaths have occurred in recent years.



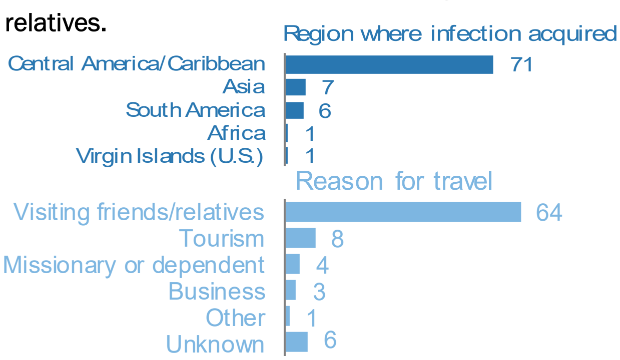
Four outbreak-associated cases in 2018 were linked to Haiti (mission trip: two cases; visiting relatives: two cases).



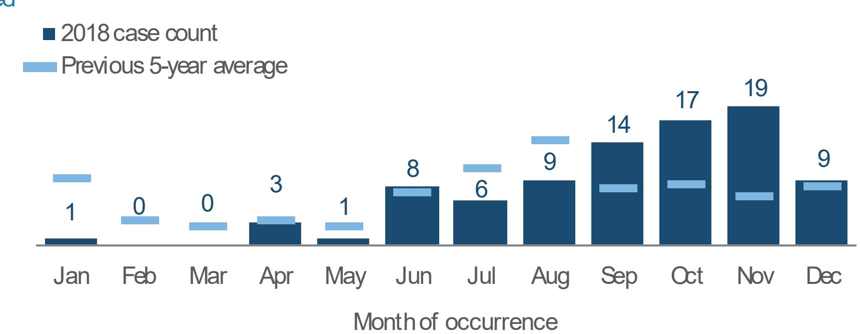
One case was acquired in Miami-Dade County in 2018; all others were imported from other countries or U.S. territories with endemic transmission.



Most dengue fever cases were acquired in the Caribbean, primarily Cuba, while visiting friends and relatives.



Dengue fever cases are most common in summer and fall, but can be imported any time of year. In 2018, 68% of cases occurred from August to November.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Ehrlichiosis

Key Points

Ehrlichiosis is a broad term used to describe illnesses caused by a group of bacterial pathogens. At least three different *Ehrlichia* species are known to cause human illness in the U.S. Both *Ehrlichia chaffeensis*, also known as human monocytic ehrlichiosis (HME), and *Ehrlichia ewingii* are transmitted by the lone star tick (*Amblyomma americanum*), one of the most commonly encountered ticks in the southeastern U.S. A third *Ehrlichia* species, called *Ehrlichia muris eauclairensis*, has been reported in a small number of cases in Minnesota and Wisconsin; it is transmitted by the black-legged tick (*Ixodes scapularis*).

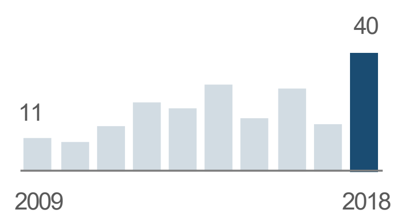
Disease Facts

- **Caused** by *Ehrlichia chaffeensis*, *Ehrlichia ewingii*, *Ehrlichia muris eauclairensis* bacteria
- **Illness** includes fever, headache, fatigue and muscle aches
- **Transmitted** via bite of infective tick; rarely through blood transfusion and organ transplant
- **Under surveillance** to monitor incidence over time, estimate burden of illness, understand epidemiology of each species, target areas of high incidence for prevention education

Ehrlichiosis cases present with similar symptoms regardless of species causing infection and are indistinguishable by serologic testing. *E. ewingii* and *E. muris eauclairensis* are most frequently identified in immunocompromised patients. Severe illness is most frequent in adults >50 years old and those who are immunocompromised. Delays in treatment can increase risk for severe outcomes across all age groups.

Erhlichiosis incidence in Florida increased notably in 2018, consistent with general increases in tickborne rickettsial infections nationally. A larger proportion of cases (15%) with reported exposures outside of Florida also contributed to this increase. In 2018, the majority of cases were in males. Most cases were also in whites and non-Hispanics, which may in part be due to more homogenous population demographics in northern and central Florida where most exposures occur.

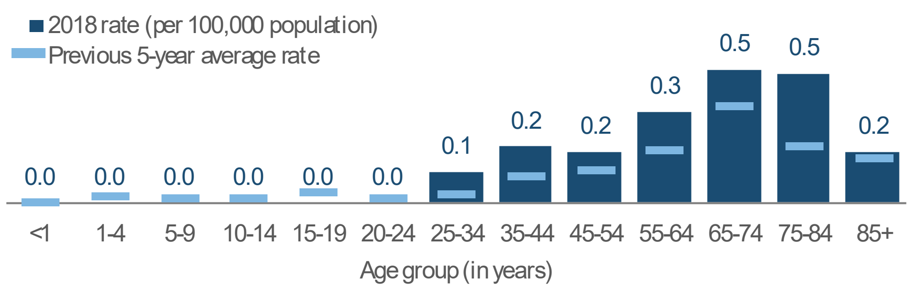
Ehrlichiosis incidence increased notably in 2018.



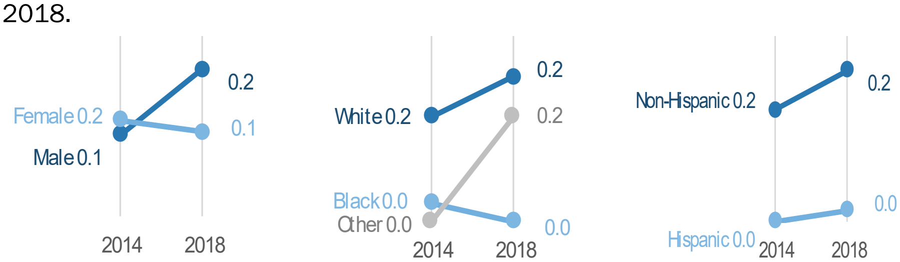
Disease Trends

The ehrlichiosis rate (per 100,000 population) is highest in adults, particularly in adults 55 to 84 years old.

Summary			
Number of cases			40
Rate (per 100,000 population)			0.2
Change from 5-year average rate			+69.3%
Age (in Years)			
Mean			60
Median			62
Min-max			25 - 86
Gender	**Number**	**(Percent)**	**Rate**
Female	15	(37.5)	NA
Male	25	(62.5)	0.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	38	(95.0)	0.2
Black	0	(0.0)	NA
Other	2	(5.0)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	38	(97.4)	0.2
Hispanic	1	(2.6)	NA
Unknown ethnicity	1		



Ehrlichiosis rates (per 100,000 population) remained relatively stable in all demographics from 2014 to 2018, except for other races, where it increased slightly. Rates were higher in males, whites, other races and non-Hispanics in 2018.



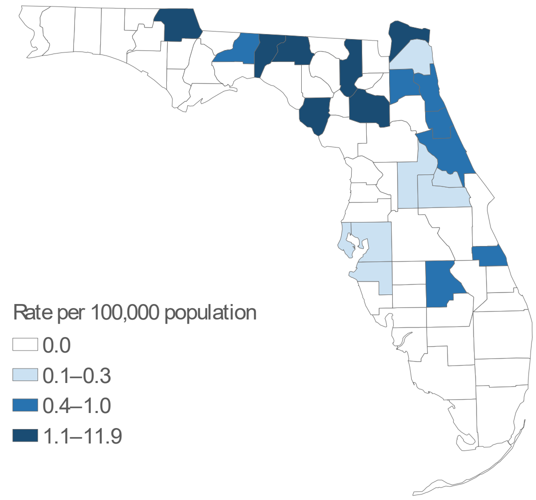
Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Ehrlichiosis cases were missing 6.9% of ethnicity data in 2014 and 6.9% of race data in 2014.

Ehrlichiosis

Summary	Number
Number of cases	40
Case Classification	**Number (Percent)**
Confirmed	21 (52.5)
Probable	19 (47.5)
Outcome	**Number (Percent)**
Hospitalized	29 (72.5)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	28 (82.4)
Acquired in the U.S., not Florida	6 (17.6)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	6
Outbreak Status	**Number (Percent)**
Sporadic	40 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

Of note, one "ehrlichiosis/anaplasmosis, undetermined" case was reported in 2018; it is not included in the ehrlichiosis case count. Serologic testing could not determine whether this infection was caused by *Ehrlichia* or *Anaplasma*; however, epidemiological data suggest it was likely caused by *Ehrlichia*.

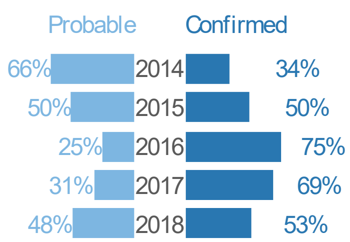
Most ehrlichiosis infections acquired within Florida are in residents of northern and central counties. In 2018, four cases were reported in Alachua County and two cases each in Dixie, Duval, Leon and Volusia counties. The remaining 16 counties each had one case reported.



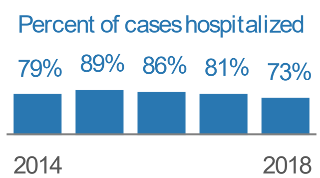
Rates are by county of residence for infections acquired in Florida (28 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

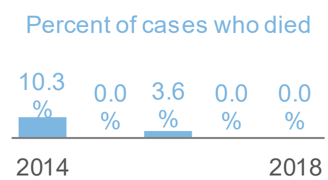
More Disease

Between 34% and 75% of ehrlichiosis cases are confirmed; 53% of 2018 cases were confirmed.

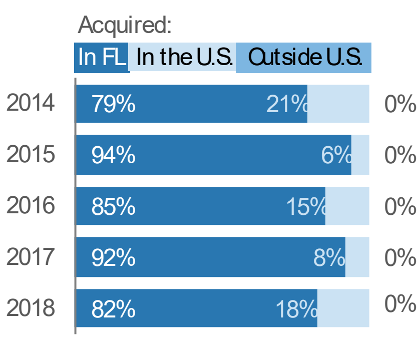


Most ehrlichiosis cases are hospitalized; deaths are uncommon. Although severe illness is more common in older adults, six (67%) of the nine cases in people <50 years old were hospitalized in 2018.

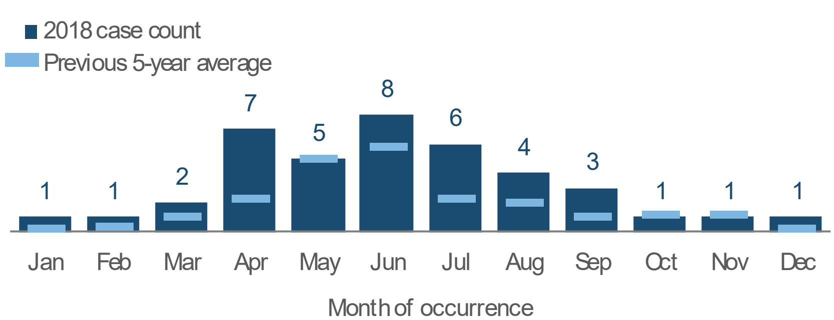




Most infections are acquired in Florida. In 2018, six infections were imported from other states. Three cases with unknown location of exposure spent time in both Florida and another state or country during their exposure periods.



Ehrlichiosis cases are reported year-round, though peak transmission typically occurs during the summer months. Activity was highest in April and June in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Giardiasis, Acute

Key Points

Giardia intestinalis (also known as *G. lamblia* and *G. duodenalis*) is the most common intestinal parasite of humans identified in the U.S. and a common cause of outbreaks associated with untreated surface and groundwater. Annually, an estimated 1.2 million cases occur in the U.S., and hospitalizations resulting from giardiasis cost approximately $34 million. Case reports have associated giardiasis with the development of chronic enteric disorders, allergies and reactive arthritis.

Disease Facts

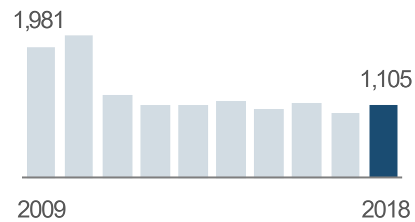
- **Caused** by *Giardia* parasites
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person to person, animal to person, waterborne and foodborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food/water source, ill food handler), monitor incidence over time, estimate burden of illness

From August 2008 to January 2011, laboratory-confirmed cases no longer had to be symptomatic to meet the confirmed case definition, resulting in an increase in reported cases in 2009 and 2010.

Giardiasis is a common parasitic disease reported in Florida. Giardiasis incidence is highest in children 1 to 4 years old, followed by children 5 to 9 years old, then infants <1 year old. It occurs throughout the state year-round, though the highest rates (per 100.000 population) are in small, rural counties.

Giardia lives in the intestines of an infected person or animal and is shed through the feces. Outside of the body, *Giardia* has the potential to survive from weeks to months.

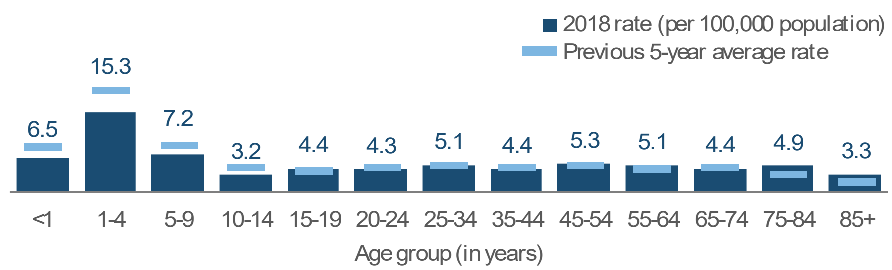
Giardiasis incidence has remained relatively consistent since the last case definition change in 2011.



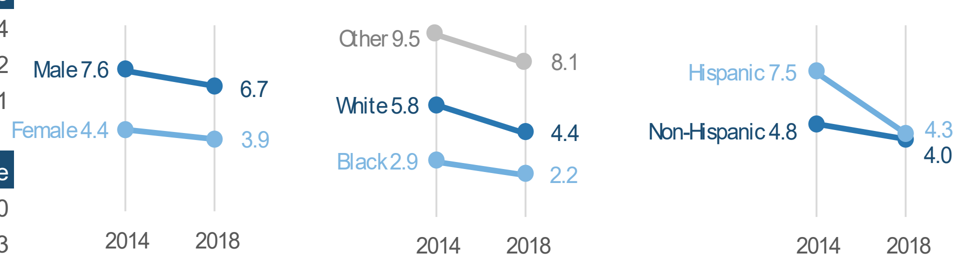
Disease Trends

Summary			
Number of cases			1,105
Rate (per 100,000 population)			5.3
Change from 5-year average rate			-3.6%
Age (in Years)			
Mean			37
Median			37
Min-max			0 - 91
Gender	**Number**	**(Percent)**	**Rate**
Female	416	(37.6)	3.9
Male	689	(62.4)	6.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	711	(80.3)	4.4
Black	78	(8.8)	2.2
Other	96	(10.8)	8.1
Unknown race	220		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	628	(72.9)	4.0
Hispanic	233	(27.1)	4.3
Unknown ethnicity	244		

The giardiasis rate (per 100,000 population) is consistently highest in children 1 to 4 years old, followed by infants <1 year old and children 5 to 9 years old, which remained true in 2018.



In 2018, the giardiasis rate (per 100,000 population) was lower in all gender, race and ethnicity groups compared to 2014. The decrease was most notable in Hispanics.

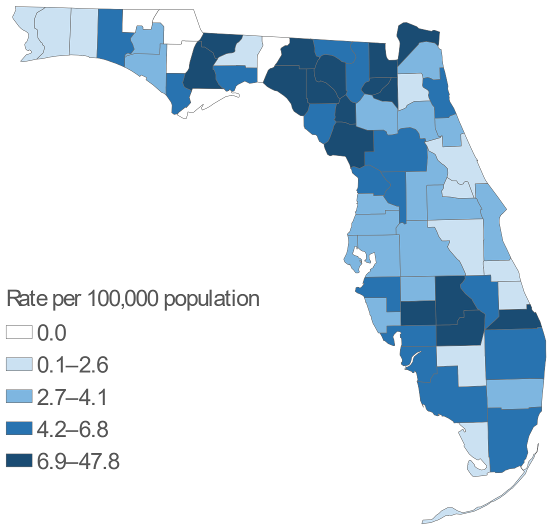


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute giardiasis cases were missing 7.8% of ethnicity data in 2014, 7.3% of race data in 2014, 22.1% of ethnicity data in 2018 and 19.9% of race data in 2018.

Giardiasis, Acute

Summary	Number
Number of cases	1,105
Case Classification	**Number (Percent)**
Confirmed	1,069 (96.7)
Probable	36 (3.3)
Outcome	**Number (Percent)**
Hospitalized	137 (12.4)
Died	1 (0.1)
Sensitive Situation	**Number (Percent)**
Daycare	42 (3.8)
Health care	24 (2.2)
Food handler	10 (0.9)
Imported Status	**Number (Percent)**
Acquired in Florida	812 (85.7)
Acquired in the U.S., not Florida	25 (2.6)
Acquired outside the U.S.	110 (11.6)
Acquired location unknown	158
Outbreak Status	**Number (Percent)**
Sporadic	973 (89.4)
Outbreak-associated	115 (10.6)
Outbreak status unknown	17

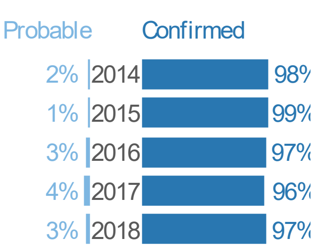
Giardiasis occurs throughout the state. In 2018, rates (per 100,000 population) were consistently highest in small, rural counties.



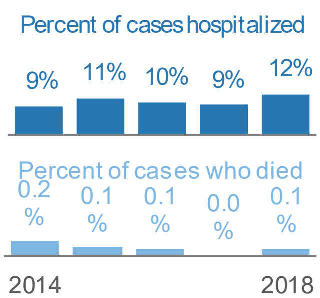
Rates are by county of residence for infections acquired in Florida (812 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

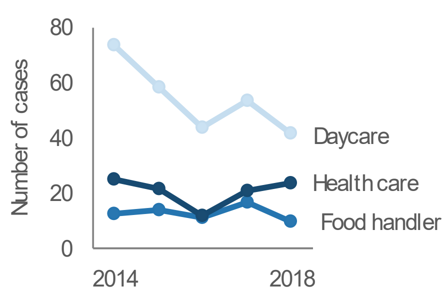
Most cases are confirmed. Probable cases are epidemiologically linked to confirmed cases.



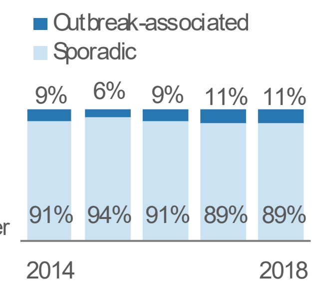
Between 9% and 12% of cases are hospitalized; deaths are very rare.



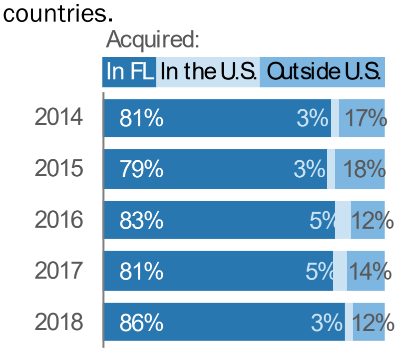
Cases in sensitive situations are monitored. People in sensitive situations may pose a risk for transmitting infection to others.



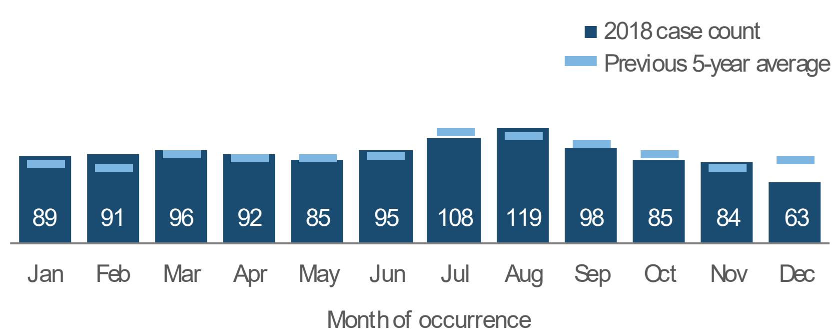
Outbreak-associated giardiasis cases typically reflect small household clusters.



Between 79% to 86% of giardiasis infections are acquired in Florida each year; some infections are acquired in other states and countries.



Giardiasis occurs throughout the year with a small increase in the summer and early fall months. In 2018, incidence was highest in July and August.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Gonorrhea (Excluding Neonatal Conjunctivitis)

Key Points

Over the past 10 years there has been a shift in the demographics of those less than 25 years old diagnosed with gonorrhea. Historically, the gonorrhea rate was higher in females than males for persons 15 to 24 years old. During 2014, this shifted for persons 20 to 24 years old, with more male patients in that age group diagnosed. The rates in males have been increasing in most age groups since 2014.

The Department is one of 10 recipients of the Centers for Disease Control and Prevention's (CDC) Sexually Transmitted Disease Surveillance Network Grant. This grant requires awardees to randomly sample 10% of the reported gonorrhea cases across the state and conduct in-depth interviews to gather more information about potential risk factors. This includes information about their sexual behaviors and preferences as well as self-reported demographic information. Data from this grant are used to identify at-risk subpopulations and better target prevention efforts for these groups.

Disease Facts

Caused by *Neisseria gonorrhoeae* bacteria

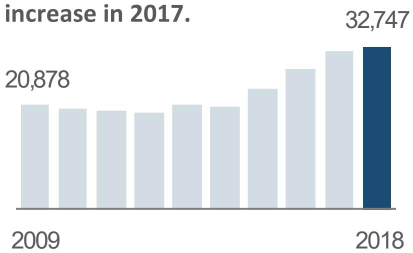
Illness is frequently asymptomatic; sometimes abnormal discharge from vagina or penis or burning sensation when urinating

Transmitted sexually via anal, vaginal, or oral sex and sometimes from mother to child during pregnancy or delivery

Under surveillance to implement effective interventions immediately for every case, monitor incidence over time, estimate burden of illness, evaluate treatment and prevention programs

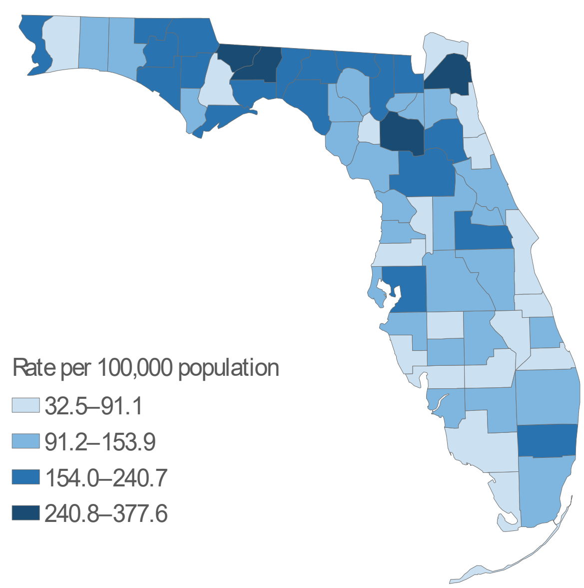
Disease Trends

Gonorrhea incidence continued to increase in 2017.



Summary			
Number of cases			32,747
Rate (per 100,000 population)			156.3
Change from 5-year average rate			+24.3%
Age (in Years)			
Mean			28
Median			26
Min-max			2 - 85
Gender	**Number**	**(Percent)**	**Rate**
Female	12,964	(39.6)	121.0
Male	19,779	(60.4)	193.1
Unknown gender	4		
Race	**Number**	**(Percent)**	**Rate**
White	10,469	(36.3)	64.5
Black	15,100	(52.3)	425.4
Other	3,293	(11.4)	277.1
Unknown race	3,885		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	22,850	(83.6)	146.8
Hispanic	4,487	(16.4)	83.2
Unknown ethnicity	5,410		

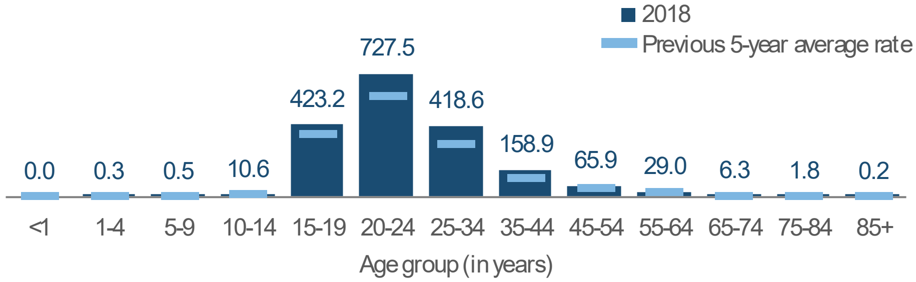
Gonorrhea occurs throughout the state. Higher rates (per 100,000 population) were clustered in the northern part of the state in 2018. The highest rates were in Leon (377.6), Duval (368.0), Alachua (309.4), Gadsden (296.8) and Jackson (240.7) counties. These counties accounted for 17% of the state's cases but only 8% of the state's population.



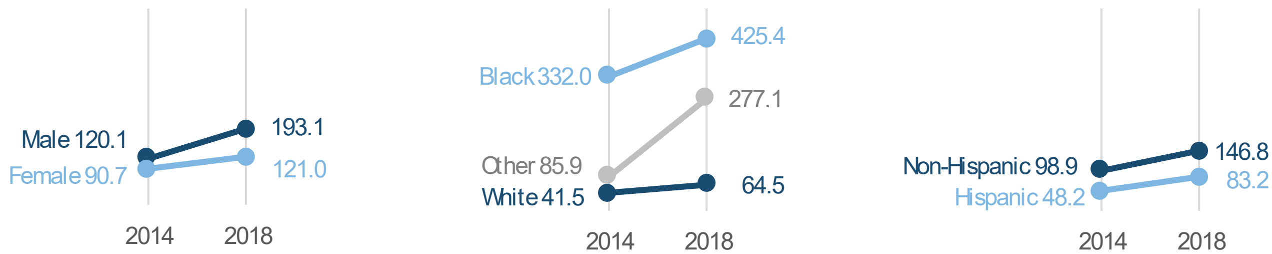
Rates are by county of residence, regardless of where infection was acquired (32,747 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

Gonorrhea (Excluding Neonatal Conjunctivitis)

Gonorrhea rates are highest in teenagers and adults 15 to 34 years old, peaking in adults 20 to 24 years old.



Gonorrhea rates (per 100,000 population) have increased in all gender, race and ethnicity groups from 2014 to 2018, but the most noticeable increase was in other races. The rates were almost seven times higher in blacks than whites in 2018. Rates are higher in males than females and higher in non-Hispanics than Hispanics.



Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Gonorrhea cases (excluding neonatal conjunctivitis) w ere missing 17.4% of ethnicity data in 2014, 12.1% of race data in 2014, 16.5% of ethnicity data in 2018 and 11.9% of race data in 2018.

The gonorrhea rate (per 100,000 population) in males has increased in all age groups primarily affected by gonorrhea over the past 10 years. However, the increase is most pronounced in adults 25 to 34 years old, particularly in the last four years. In females, the rate has decreased from 10 years ago in people 15 to 19 years old but has increased in young adults and adults 20 to 34 years old.

Teenagers 15–19 years old

Gender	2009 rate	10-year trend	2018 rate
Male	296.0		311.6
Female	639.0		490.1

Young adults 20–24 years old

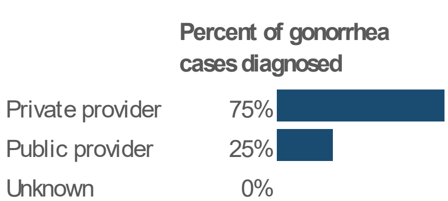
Gender	2009 rate	10-year trend	2018 rate
Male	509.9		702.5
Female	587.3		664.4

Adults 25–34 years old

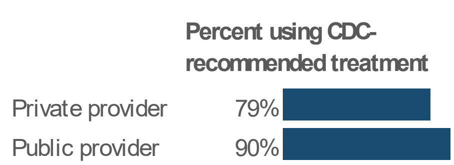
Gender	2009 rate	10-year trend	2018 rate
Male	250.3		527.5
Female	192.8		296.9

With the looming threat of antibiotic-resistant *Neisseria gonorrhoeae*, it is important that patients diagnosed with gonorrhea are treated with CDC-recommended antibiotics. Currently, ceftriaxone paired with azithromycin is the recommended treatment. Ceftriaxone is the last available antibiotic to treat *N. gonorrhoeae*; the bacteria have not developed a resistance to ceftriaxone yet.

In 2018, 75% of diagnosed gonorrhea cases in Florida were diagnosed at private providers' offices, while 25% were diagnosed in public providers' offices.



Public providers used CDC-recommended treatment more often than private providers in 2018. Common reasons for not receiving CDC-recommended treatment are drug allergies and medication cost.



Haemophilus influenzae Invasive Disease in Children <5 Years

Key Points

There are six identifiable serotypes of *H. influenzae*, named "a" through "f." Only *H. influenzae* serotype b (Hib) is vaccine-preventable. Meningitis and septicemia due to invasive Hib in children <5 years old have almost been eliminated since the introduction of effective Hib conjugate vaccines in the late 1980s. There were no cases of invasive Hib reported in 2018, compared to two cases reported in 2017. *H. influenzae* invasive disease can sometimes result in serious complications and even death. There were three deaths among cases in 2018, two of which had nontypeable strains and one with a not type b strain. No deaths in 2018 had *H. influenzae* meningitis or bacteremia listed as a cause of death on the death certificates.

Disease Facts

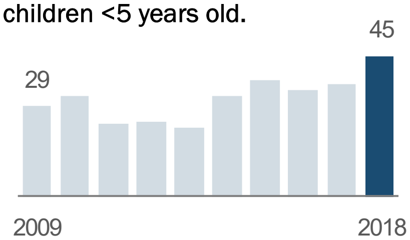
Caused by *Haemophilus influenzae* bacteria

Illness can present as pneumonia, bacteremia, septicemia, meningitis, epiglottitis, septic arthritis, cellulitis or purulent pericarditis; less frequently endocarditis and osteomyelitis

Transmitted person to person by inhalation of infective respiratory tract droplets or direct contact with infective respiratory tract secretions

Under surveillance to identify and control outbreaks, monitor incidence over time, monitor effectiveness of immunization programs and vaccines

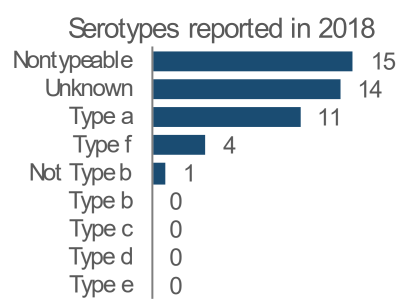
Between 20 and 45 invasive *H. influenzae* cases are reported each year in children <5 years old.

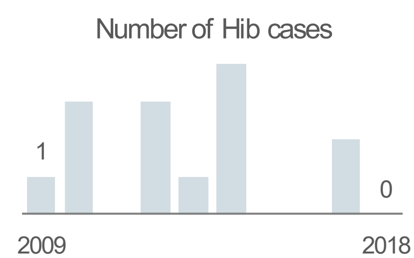


Disease Trends

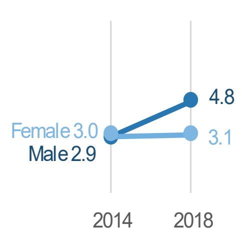
Summary			
Number of cases			45
Rate (per 100,000 population)			4.0
Change from 5-year average rate			+34.6%
Age (in Years)			
Mean			1
Median			0
Min-max			0 - 4
Gender	**Number**	**(Percent)**	**Rate**
Female	17	(37.8)	NA
Male	28	(62.2)	4.8
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	26	(57.8)	3.3
Black	11	(24.4)	NA
Other	8	(17.8)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	38	(84.4)	4.9
Hispanic	7	(15.6)	NA
Unknown ethnicity	0		

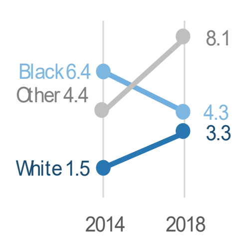
No invasive Hib cases in children <5 years old were reported in 2018 compared to two cases reported in 2017. One-third (33%) of cases had nontypeable strains, followed by serotype a (24%); samples from 14 cases (31%) were not available for serotype testing.

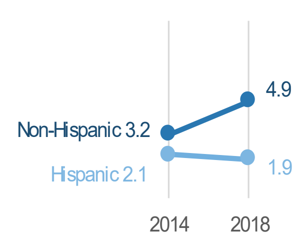




The rate (per 100,000 population) of invasive *H. influenzae* in children <5 years old is higher in males than females and higher in non-Hispanics than Hispanics in 2018. The rate is highest in other races, followed by blacks and then whites in 2018, though other races had the largest increase from 2014 to 2018.



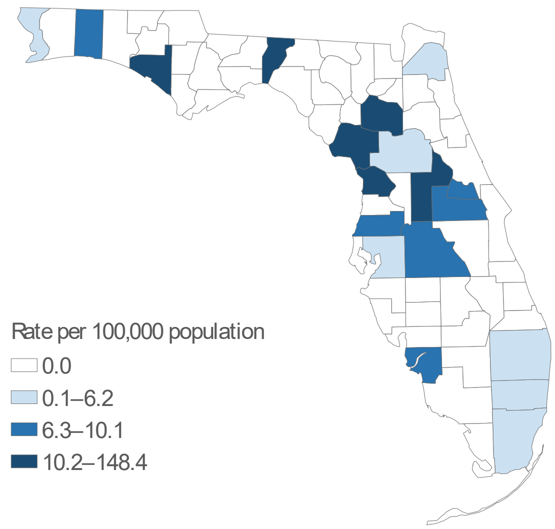




Haemophilus influenzae Invasive Disease in Children <5 Years

Summary	Number
Number of cases	45
Case Classification	**Number (Percent)**
Confirmed	45 (100.0)
Probable	0 (0.0)
Outcome	**Number (Percent)**
Hospitalized	43 (95.6)
Died	3 (6.7)
Imported Status	**Number (Percent)**
Acquired in Florida	44 (97.8)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	1 (2.2)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	42 (95.5)
Outbreak-associated	2 (4.5)
Outbreak status unknown	1

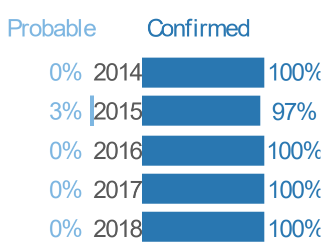
Invasive *H. influenzae* cases in children <5 years old were identified in most areas of the state in 2018, but primarily in central Florida. The highest rates (per 100,000 population) were in small, rural counties.



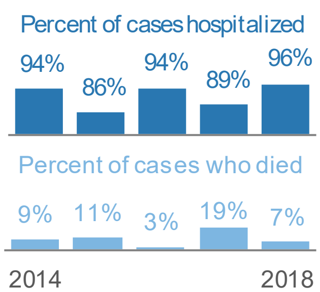
Rates are by county of residence for infections acquired in Florida (44 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

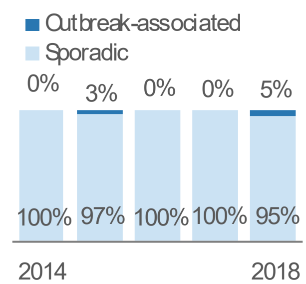
All cases were confirmed by culture or PCR in 2018, which is consistent with past years. Probable cases are based on Hib antigen detection in cerebrospinal fluid, which is rare.



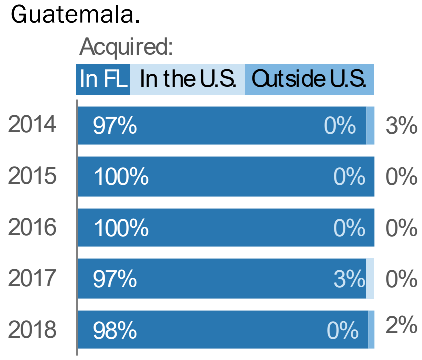
A large percentage of invasive *H. influenzae* cases in children <5 years old are hospitalized. Three children died in 2018.



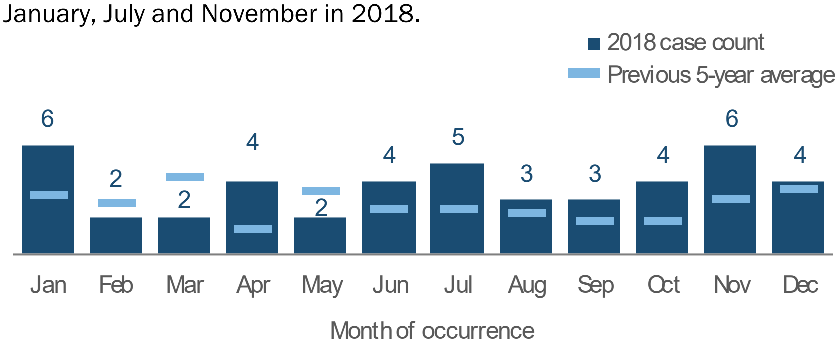
Almost all cases are sporadic. Outbreak-associated cases are usually vertical transmission from mother to infant.



Most infections are acquired in Florida. In 2018, one case was imported from Guatemala.



There is not a distinct seasonality to invasive *H. influenzae* in children <5 years old. It occurs in low numbers year-round. More cases were reported in January, July and November in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Hepatitis A

Disease Facts

Caused by hepatitis A virus (HAV)

Illness includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort and jaundice (can be asymptomatic)

Transmitted via fecal-oral route, including person to person, foodborne and waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor effectiveness of immunization programs

Key Points

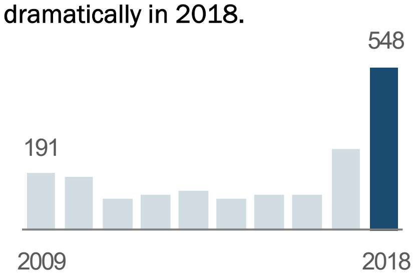
The best way to prevent hepatitis A infection is through vaccination. Vaccination is recommended for all children at age 1 year, travelers to countries where hepatitis A is common, families and caregivers of adoptees from countries where hepatitis A is common, men who have sex with men, persons who use recreational drugs (injection or non-injection), persons experiencing homelessness, persons with chronic liver disease or clotting factor disorders, persons with direct contact with others who have hepatitis A and anyone who wishes to obtain immunity.

Incidence increased substantially in 2018, with almost three times as many cases reported in a single year since 2009.

Most cases occurred in central Florida, with almost half (263 cases) reported in Pinellas, Hillsborough and Pasco counties. The majority of cases were in adults (median of 38 years old), males, whites and non-Hispanics.

In 2018, the most commonly reported risk factor was drug use in 50% of cases. Other risk factors included homelessness in 13% of cases and men who have sex with men in 11% of cases. No foodborne outbreaks of hepatitis A were reported in 2018.

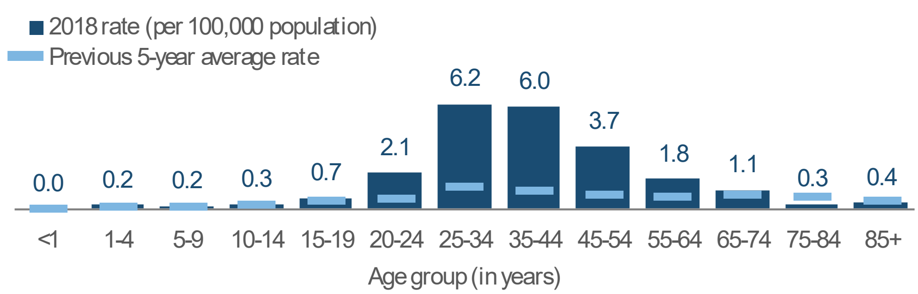
Hepatitis A incidence increased dramatically in 2018.



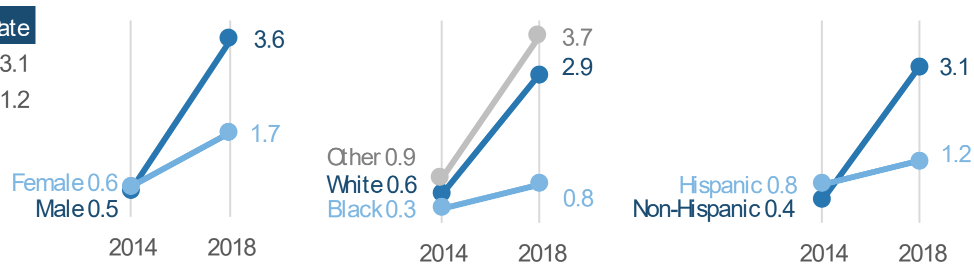
Disease Trends

Summary			
Number of cases			548
Rate (per 100,000 population)			2.6
Change from 5-year average rate			+244.6%
Age (in Years)			
Mean			40
Median			38
Min-max			2 - 88
Gender	**Number**	**(Percent)**	**Rate**
Female	181	(33.0)	1.7
Male	367	(67.0)	3.6
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	474	(87.0)	2.9
Black	27	(5.0)	0.8
Other	44	(8.1)	3.7
Unknown race	3		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	479	(88.1)	3.1
Hispanic	65	(11.9)	1.2
Unknown ethnicity	4		

The hepatitis A rate (per 100,000 population) is consistently highest in adults 25 to 34 years old. The increase in 2018 was most noticeable in this age group, but noticeable increases also occurred in adults 20 to 24 years old and 35 to 54 years old.



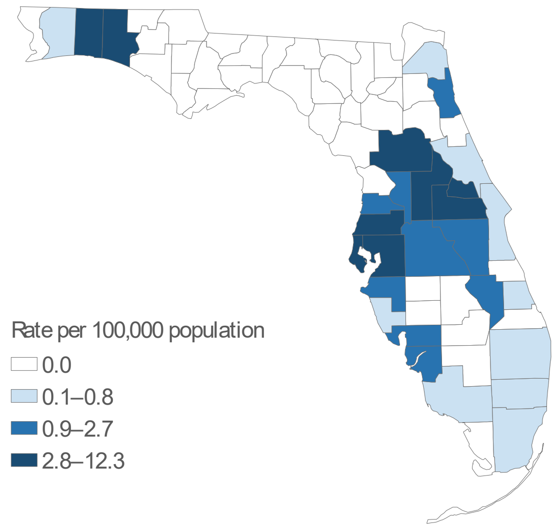
The increased hepatitis A incidence in 2018 was evident in rates (per 100,000 population) for all demographics, though most notably in males, whites, other races and non-Hispanics.



Hepatitis A

Summary	Number
Number of cases	548
Case Classification	**Number (Percent)**
Confirmed	548 (100.0)
Probable	0 (0.0)
Outcome	**Number (Percent)**
Hospitalized	433 (79.0)
Died	11 (2.0)
Sensitive Situation	**Number (Percent)**
Daycare	1 (0.2)
Health care	16 (2.9)
Food handler	30 (5.5)
Imported Status	**Number (Percent)**
Acquired in Florida	472 (95.9)
Acquired in the U.S., not Florida	4 (0.8)
Acquired outside the U.S.	16 (3.3)
Acquired location unknown	56
Outbreak Status	**Number (Percent)**
Sporadic	454 (83.5)
Outbreak-associated	90 (16.5)
Outbreak status unknown	4

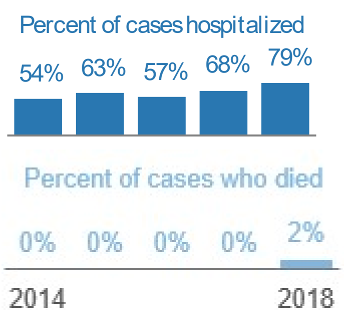
Hepatitis A cases occurred primarily in central Florida in 2018, though the rate (per 100,000 population) was high in some small, rural counties in the Panhandle and northeast Florida.



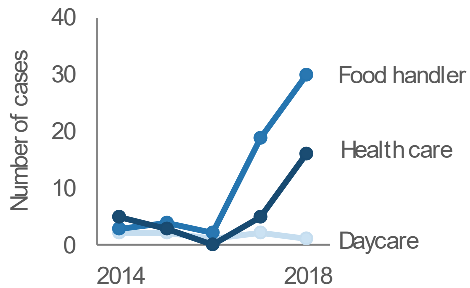
Rates are by county of residence for infections acquired in Florida (472 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

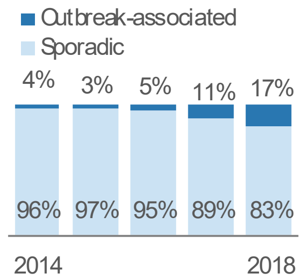
Each year, 50% to 80% of hepatitis A cases are hospitalized, though deaths are rare.



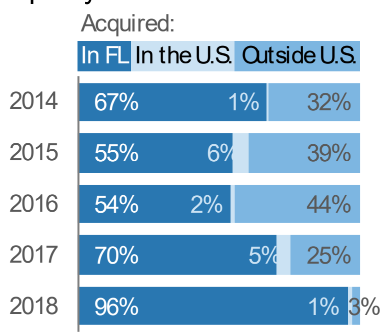
The increase in cases resulted in more infections in persons in sensitive situations, including food handlers and health care workers. However, no outbreaks were reported as a result of these infections.



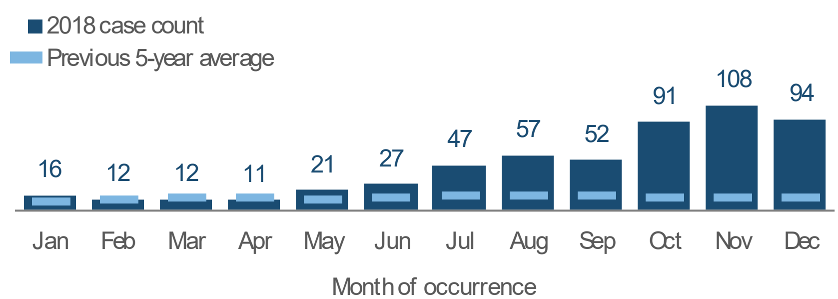
More outbreak-associated cases were identified in 2017 and 2018 than previous years.



A larger proportion of infections were acquired in Florida in 2018 compared to past years.



Hepatitis A cases began to increase in May and remained well above the previous 5-year average through December. The number of cases reported each month ranged from 11 in April to 108 in November.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Hepatitis B, Acute

Key Points

Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis B from chronic diagnoses, making surveillance challenging. Incidence has increased over the last decade despite increased vaccination. The identified increase is likely due to several factors, including an enhanced surveillance project focusing on hepatitis infections in young adults 18 to 25 years old implemented from 2012 to 2016 and changes in risk behaviors among young adults. Updated laboratory reporting guidance from June 2014 requiring laboratories participating in electronic laboratory reporting to submit all negative hepatitis results in addition to positive results has also helped identify more acute cases.

In 2018, 176 cases (22%) were classified as acute based on negative results preceding positive results. Routine vaccination against hepatitis B is recommended for all children at birth (since 1994), all unvaccinated children and adolescents less than 19 years old, adults at risk for hepatitis B and adults 19 to 59 years old with diabetes. Acute viral hepatitis B infections were frequently associated with drug use and sharing injection equipment.

Disease Facts

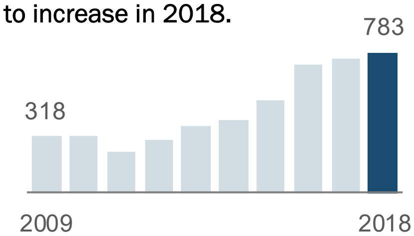
Caused by hepatitis B virus (HBV)

Illness includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort and jaundice (can be asymptomatic)

Transmitted via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks) or from mother to child during pregnancy or delivery

Under surveillance to prevent HBV transmission, identify and prevent outbreaks, improve allocation of resources for treatment services, assist in evaluating the impact of public health interventions, monitor effectiveness of immunization programs

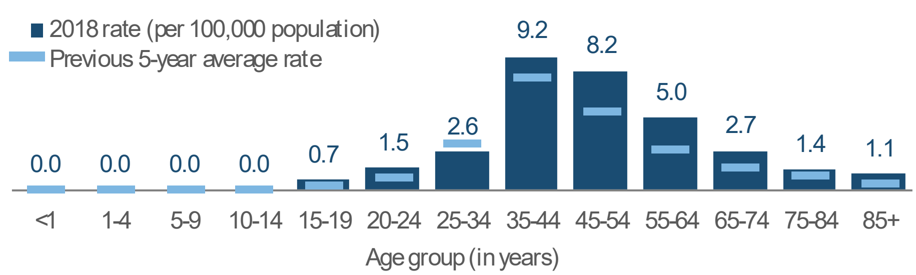
Acute hepatitis B incidence continued to increase in 2018.



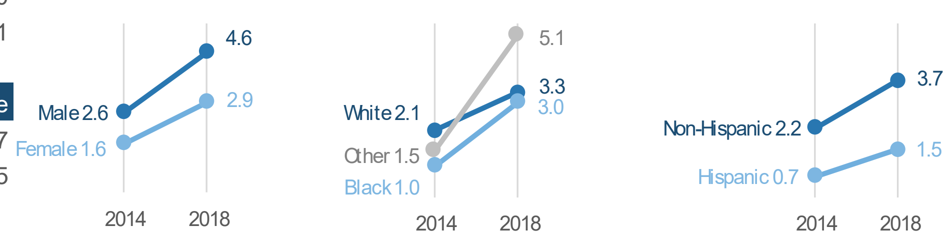
Disease Trends

Summary			
Number of cases			783
Rate (per 100,000 population)			3.7
Change from 5-year average rate			+35.7%
Age (in Years)			
Mean			48
Median			47
Min-max			17 - 90
Gender	**Number**	**(Percent)**	**Rate**
Female	316	(40.4)	2.9
Male	467	(59.6)	4.6
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	535	(76.1)	3.3
Black	107	(15.2)	3.0
Other	61	(8.7)	5.1
Unknown race	80		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	575	(87.5)	3.7
Hispanic	82	(12.5)	1.5
Unknown ethnicity	126		

The acute hepatitis B rate (per 100,000 population) is consistently highest in adults 35 to 44 years old and decreases steadily with age. The rate in adults 25 to 34 years old was lower in 2018 than the previous 5-year average.



The acute hepatitis B rate (per 100,000 population) is higher in males than females and higher in non-Hispanics than Hispanics. In 2018, rates were similar in blacks and whites but notably higher in other races.



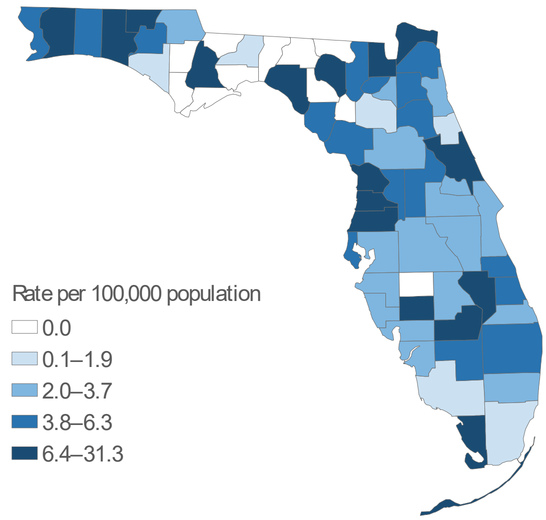
Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Acute hepatitis B cases w ere missing 12.3% of ethnicity data in 2014, 9.8% of race data in 2014, 16.1% of ethnicity data in 2018 and 10.2% of race data in 2018.

Hepatitis B, Acute

Summary	Number
Number of cases	783
Case Classification	**Number (Percent)**
Confirmed	617 (78.8)
Probable	166 (21.2)
Outcome	**Number (Percent)**
Hospitalized	459 (58.6)
Died	11 (1.4)
Imported Status	**Number (Percent)**
Acquired in Florida	532 (98.2)
Acquired in the U.S., not Florida	6 (1.1)
Acquired outside the U.S.	4 (0.7)
Acquired location unknown	241
Outbreak Status	**Number (Percent)**
Sporadic	590 (96.6)
Outbreak-associated	21 (3.4)
Outbreak status unknown	172

In 2018, 21 outbreak-associated cases were identified, including five dichotomous pairs of acute cases, five cases linked to chronic hepatitis B cases and two cases linked to acute cases reported in previous years. Most epidemiological linkages were household contacts (38%); others were sexual (29%) and personal (14%) contacts.

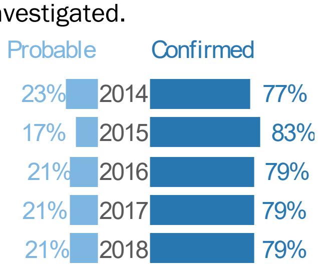
Acute hepatitis B cases occurred in most parts of the state in 2018, though less commonly in the central and eastern parts of the Florida Panhandle. The rates (per 100,000 population) were highest in the western part of the Panhandle and primarily small, rural counties across the rest of the state.



Rates are by county of residence, regardless of where infection was acquired (783 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

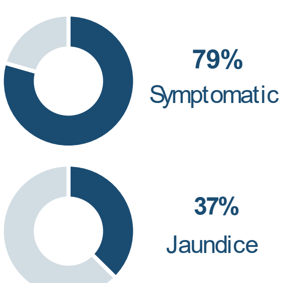
More than 75% of cases are confirmed each year. In 2018, 93% of cases were investigated.



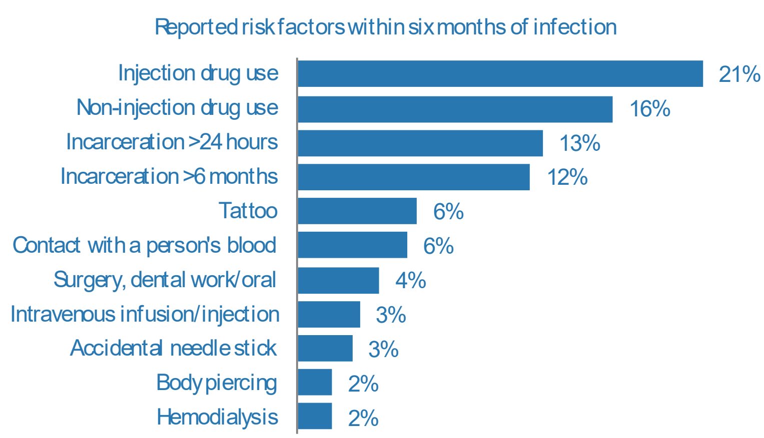
Most acute hepatitis B cases tested positive for hepatitis B surface antigen and IgM antibody to hepatitis B core antigen. The IgM antibody is an indicator of acute infection.

Test type	Percent of cases	Test interpretation
Hepatitis B surface antigen	82%	Acute or chronic HBV infection, no immunity developed
Hepatitis B core antibdy, IgM	78%	HBV is multiplying
Hepatitis B DNA	42%	HBV has stopped multiplying
Hepatitis B core antibody, total	23%	Amount of HBV in blood
Hepatitis B e antigen	22%	Acute HBV infection
Hepatitis B e antibody	10%	Immunity to HBV
Hepatitis B surface antibody	10%	Hepatitis B core antibdy, IgM

Almost 80% of acute hepatitis B cases reported in 2018 were symptomatic, but fewer than half had jaundice.



Similar to past years, the most common risk factors for hepatitis B infection reported in 2018 included injection drug use, non-injection drug use and incarceration. In 2018, the percentage of unknown or missing responses to individual risk factors ranged from 37% to 52%.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Hepatitis B, Chronic

Key Points

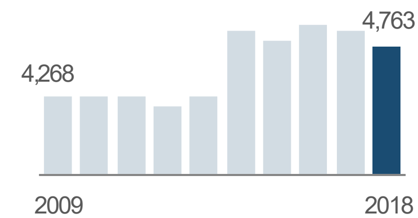
Given the large burden of chronic hepatitis and limited county resources, there have been concerns regarding data completeness and case ascertainment in the past. Earlier data are less reliable, particularly prior to 2009. Since 2009, improvements in electronic laboratory reporting (ELR) and increased focus on disease surveillance have improved case ascertainment. Automated case classification and reporting logic in the surveillance application have improved data quality. In 2014, reporting requirements were updated to include mandatory reporting of all positive and negative hepatitis results, as well as all liver function tests, to support the identification of acute hepatitis B cases. ELR has continued to expand. Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis B from chronic. Cases that do not meet the clinical criteria for acute hepatitis B or do not have prior negative laboratory results to indicate acute infection are reported as chronic. Chronic cases are not required to be investigated.

Given the large volume of laboratory results received electronically that are not investigated and for which no clinical information is available, it is likely that acute hepatitis B infections are misclassified as chronic.

Disease Facts

- **Caused** by hepatitis B virus (HBV)
- **Illness** can include chronic liver disease (e.g., cirrhosis and liver cancer), though it is often asymptomatic; two to six percent of acute infections in adults become chronic
- **Transmitted** via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks) or from mother to child during pregnancy or delivery
- **Under surveillance** to prevent HBV transmission, identify acute infections and prevent outbreaks, assist in evaluating the impact of public health interventions, monitor effectiveness of immunization programs

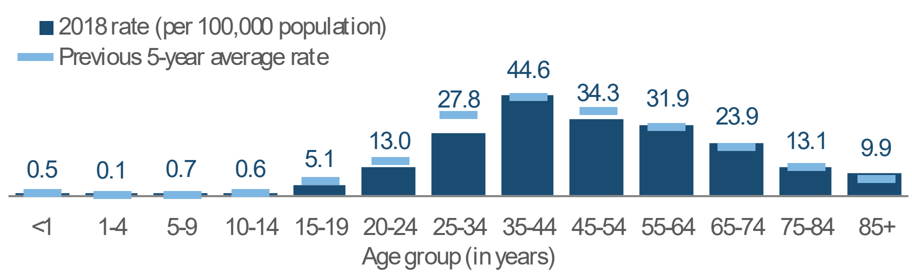
Chronic hepatitis B incidence has remained relatively constant since 2014.



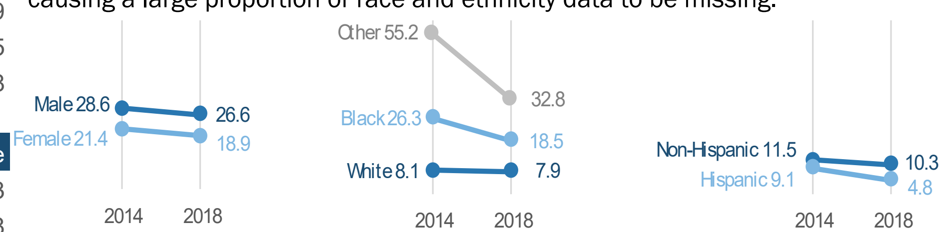
Disease Trends

Summary			
Number of cases			4,763
Rate (per 100,000 population)			22.7
Change from 5-year average rate			-5.3%
Age (in Years)			
Mean			48
Median			47
Min-max			0 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	2,023	(42.6)	18.9
Male	2,722	(57.4)	26.6
Unknown gender	18		
Race	**Number**	**(Percent)**	**Rate**
White	1,286	(55.1)	7.9
Black	656	(28.1)	18.5
Other	390	(16.7)	32.8
Unknown race	2,431		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	1,598	(86.1)	10.3
Hispanic	258	(13.9)	4.8
Unknown ethnicity	2,907		

Similar to acute hepatitis B, the rate (per 100,000 population) of chronic hepatitis B is highest in adults 35 to 44 years old. The rate in adults 25 to 34 years old was lower in 2018 than the previous 5-year average.



Chronic hepatitis B rates (per 100,000 population) are similar by gender and ethnicity groups, though rates vary by race. Few chronic cases are investigated, causing a large proportion of race and ethnicity data to be missing.

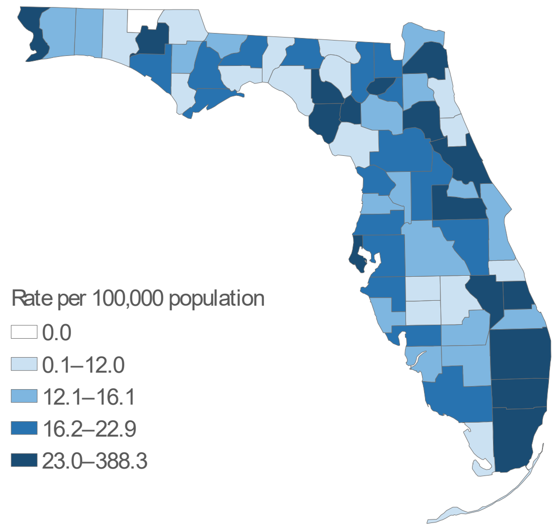


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chronic hepatitis B cases were missing 56.3% of ethnicity data in 2014, 45.9% of race data in 2014, 61.0% of ethnicity data in 2018 and 51.0% of race data in 2018.

Hepatitis B, Chronic

Summary	Number
Number of cases	4,763
Case Classification	**Number (Percent)**
Confirmed	2,090 (43.9)
Probable	2,673 (56.1)
Outcome	**Number (Percent)**
Hospitalized	173 (3.6)
Died	12 (0.3)
Imported Status	**Number (Percent)**
Acquired in Florida	514 (91.1)
Acquired in the U.S., not Florida	3 (0.5)
Acquired outside the U.S.	47 (8.3)
Acquired location unknown	4,199
Outbreak Status	**Number (Percent)**
Sporadic	785 (98.9)
Outbreak-associated	9 (1.1)
Outbreak status unknown	3,969

Chronic hepatitis B occurred throughout the state in 2018, with the highest rates (per 100,000 population) in small, rural counties across the state and in large counties in southeast Florida.



Rates are by county of residence, regardless of where infection was acquired (4,763 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

Most chronic hepatitis B cases tested positive for hepatitis B surface antigen. A small number of cases had IgM antibody to hepatitis B core antigen but did not meet the case definition for acute hepatitis B.

Test type	Percent of cases	Test interpretation
Hepatitis B surface antigen	89%	Acute or chronic HBV infection, no immunity developed
Hepatitis B DNA	37%	HBV has stopped multiplying
Hepatitis B core antibody, total	27%	Acute HBV infection
Hepatitis B e antibody	15%	Immunity to HBV
Hepatitis B e antigen	10%	Amount of HBV in blood
Hepatitis B surface antibody	4%	HBV is multiplying
Hepatitis B core antibdy, IgM	2%	Hepatitis B core antibdy, IgM

Less than half of chronic hepatitis B cases are confirmed. Very few cases are investigated.

Probable	Year	Confirmed
77%	2014	23%
71%	2015	29%
66%	2016	34%
57%	2017	43%
56%	2018	44%

In 2018, 257 chronic hepatitis B cases (5.4%) were also diagnosed with HIV. The majority of people with co-infections were male, black and 45 to 54 years old.

Gender	Percent of
Male	86%
Female	14%
Race	
White	46%
Black	49%
Other	2%
Unknow	4%

Age group	Percent of cases
15–19	0.4%
20–24	2.0%
25–34	11.7%
35–44	21.8%
45–54	29.6%
55–64	28.4%
65–74	5.5%
75–84	0.8%
85+	0.0%

Order of infection can not be determined from these charts. Race and ethnicity data are from the enhanced HIV/AIDS Reporting System as demographic data were more complete.

See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Hepatitis B, Pregnant Women

Key Points

Hepatitis B is a vaccine-preventable disease. Identification of HBV in pregnant women allows for appropriate treatment of their infants, significantly reducing the infants' risk of contracting HBV. Rates for HBV infections in pregnant women are per 100,000 women aged 15 to 44 years old.

The 2016 National Immunization Survey estimates that HBV vaccination coverage for a birth dose administered from birth through 3 years old was 75% in the U.S. and 59% in Florida. Birthing hospitals have standing orders to administer the birth dose of the HBV vaccine; however, pediatricians sometimes choose to wait to give the first dose in their private offices. With lower-than-expected vaccination rates, Florida is currently working with the Florida Chapter of the American Academy of Pediatrics to provide education reminding health care providers that the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices recommends the birth dose be given within 24 hours to help decrease HBV infections in newborns.

Incidence of hepatitis in pregnant women has generally decreased over the past 10 years, possibly due to increased vaccination of women of childbearing age or changes in case ascertainment and protocol. In the U.S., Asians have a high HBV carrier rate (7–16%) and account for most HBV diagnoses in the other races category.

Disease Facts

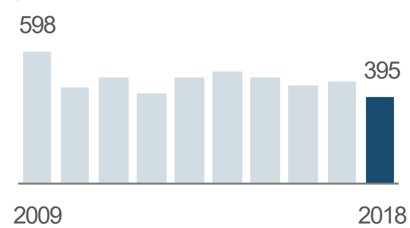
Caused by hepatitis B virus (HBV)

Illness is acute or chronic; about 90% of children who are infected at birth or during the first year of life will become chronically infected

Transmitted via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks) or from mother to child during pregnancy or delivery

Under surveillance to identify individual cases and implement control measures to prevent HBV transmission from mother to baby; monitor and evaluate effectiveness of screening programs

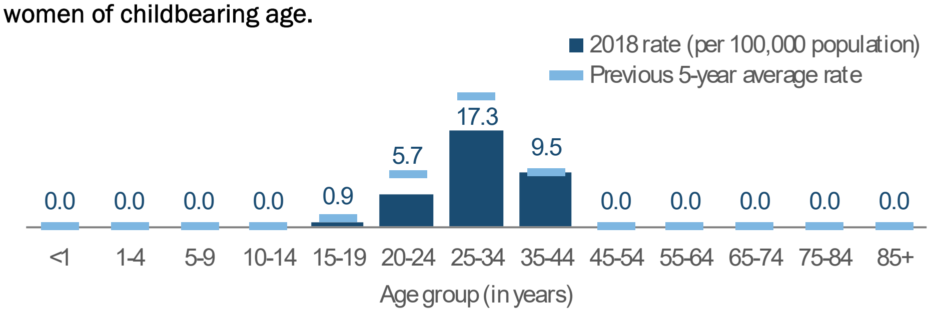
HBV infections in pregnant women have declined over the past 10 years, but have remained relatively consistent since 2010.



Disease Trends

Summary			
Number of cases			395
Rate (per 100,000 population)			10.3
Change from 5-year average rate			-20.1%
Age (in Years)			
Mean			32
Median			32
Min-max			17 - 44
Gender	**Number**	**(Percent)**	**Rate**
Female	395	(100.0)	10.3
Male	0	(0.0)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	73	(20.6)	2.6
Black	177	(49.9)	22.3
Other	105	(29.6)	39.8
Unknown race	40		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	307	(92.5)	11.4
Hispanic	25	(7.5)	2.2
Unknown ethnicity	63		

The HBV infection rate (per 100,000 population) in pregnant women is highest in women 25 to 34 years old, with much lower rates in older and younger women of childbearing age.



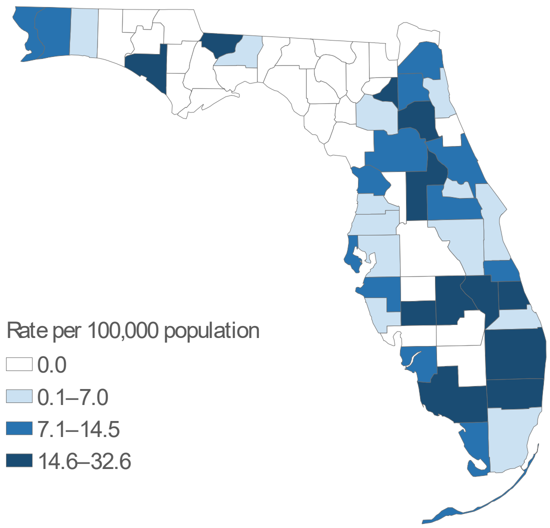
The HBV infection rate (per 100,000 population) in pregnant women decreased slightly across all demographics from 2014 to 2018, except in other races where the decrease was dramatic. The rate is highest in other races, followed by blacks and then whites, and higher in non-Hispanics than Hispanics.

Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Hepatitis B surface antigen cases in pregnant women were missing 7.8% of ethnicity data in 2014, 5.3% of race data in 2014, 15.9% of ethnicity data in 2018 and 10.1% of race data in 2018.

Hepatitis B, Pregnant Women

Summary	Number
Number of cases	395
Outcome	**Number (Percent)**
Hospitalized	41 (10.4)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	178 (60.1)
Acquired in the U.S., not Florida	4 (1.4)
Acquired outside the U.S.	114 (38.5)
Acquired location unknown	99

Similar to the distribution of chronic hepatitis B, the highest rates (per 100,000 population) of HBV infection in pregnant women are clustered in south Florida. Unlike chronic HBV infections, many counties in the Panhandle did not identify any HBV infections in pregnant women in 2018.

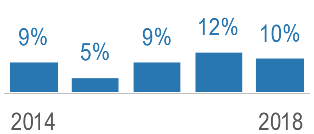


Rates are by county of residence, regardless of where infection was acquired (395 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

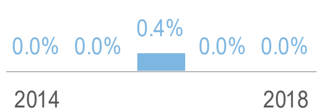
More Disease

Between 5% and 12% of cases are hospitalized each year; deaths are rare. Two cases died in 2016, but neither death was related to HBV infection. No deaths were identified in 2018.

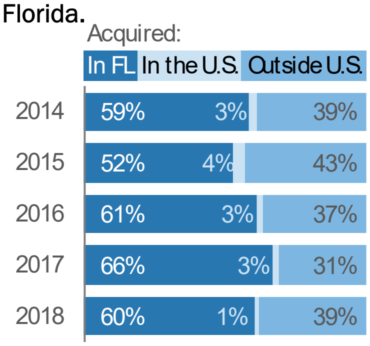
Percentage of cases hospitalized



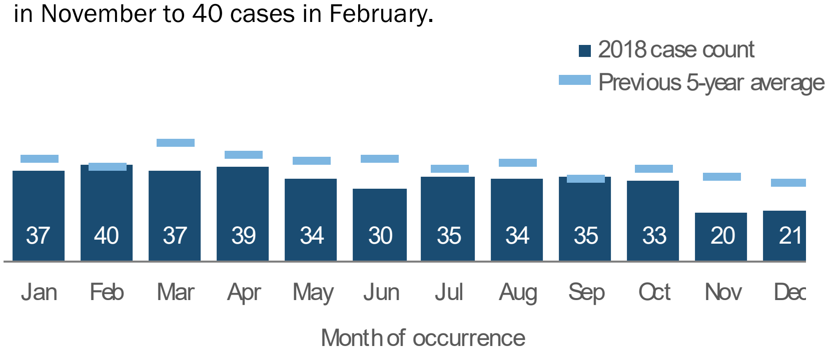
Percentage of cases who died



Generally, between 30% and 40% of infections are acquired outside Florida.

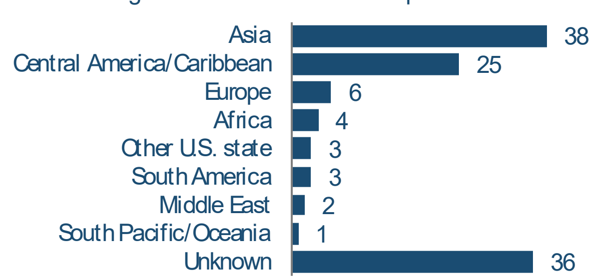


There is no seasonality to HBV infections in pregnant women. The number of cases that occurred in 2018 varied by month from 20 cases in November to 40 cases in February.



For infections known to be acquired outside Florida, Asia and Central America/Caribbean are the most common regions where exposure occurred.

Region where infection was acquired



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status and month of occurrence.

Hepatitis C, Acute

Key Points

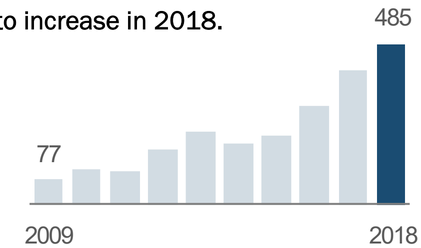
Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis C from chronic diagnoses, making surveillance challenging. Incidence has increased since 2008, likely due to several factors, including a change in case definition in 2008, an enhanced surveillance project focusing on hepatitis infections in young adults initiated in 2012 and changes in risk behaviors in young adults. Additionally, updated laboratory reporting guidance in June 2014 required laboratories participating in electronic laboratory reporting to submit all negative hepatitis results in addition to all positive results. In 2018, 73% of cases were determined to be acute based on negative results preceding positive results.

Disease Facts

- **Caused** by hepatitis C virus (HCV)
- **Illness** includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort and jaundice (can be asymptomatic)
- **Transmitted** via blood exposure, percutaneous exposure (e.g., tattooing, needle sticks), from mother to child during pregnancy or delivery or rarely through anal or vaginal sex.
- **Under surveillance** to prevent HCV transmission, identify and prevent outbreaks, assist in evaluating the impact of public health interventions and screening programs

New hepatitis C diagnoses are frequently associated with drug use and sharing of injection equipment. In 2018, most reported cases were sporadic. Ten outbreak-associated cases were identified, each of which was epidemiologically linked to a chronic hepatitis C case. Of the 10 outbreak-associated cases, five (45%) were epidemiologically linked through sexual contact, three (27%) through personal contact and one (9%) through a family member with chronic hepatitis C. The remaining two (18%) outbreak-associated cases were linked for other reasons.

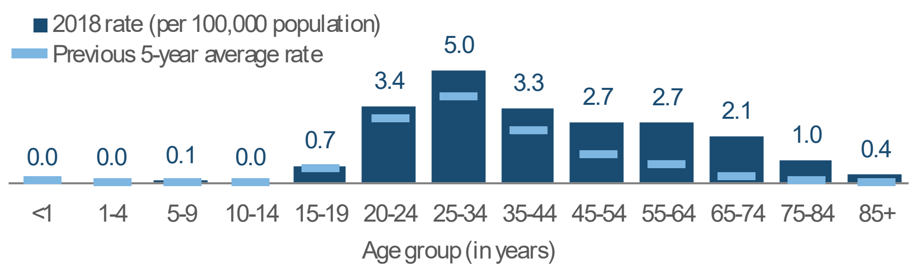
Acute hepatitis C incidence continued to increase in 2018.



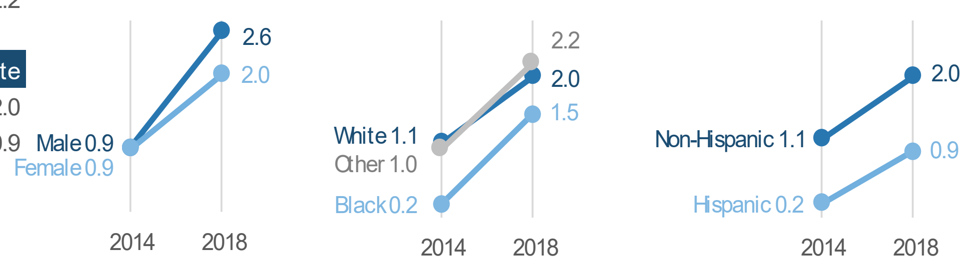
Disease Trends

Summary	Number (Percent)	Rate
Number of cases		485
Rate (per 100,000 population)		2.3
Change from 5-year average rate		+75.7%
Age (in Years)		
Mean		43
Median		40
Min-max		6 - 87
Gender	**Number (Percent)**	**Rate**
Female	215 (44.3)	2.0
Male	270 (55.7)	2.6
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	326 (80.7)	2.0
Black	52 (12.9)	1.5
Other	26 (6.4)	2.2
Unknown race	81	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	313 (86.2)	2.0
Hispanic	50 (13.8)	0.9
Unknown ethnicity	122	

The acute hepatitis C rate (per 100,000 population) is higher in younger adults compared to acute hepatitis B. The highest rate is in adults aged 25 to 34 years old, followed by adults 20 to 24 years old. In 2018, rates in all adult age groups exceeded the previous 5-year average.



The acute hepatitis C rates (per 100,000 population) increased across all age, race and ethnicity groups from 2014 to 2018. The rate was higher in males compared to females, higher in non-Hispanics compared to Hispanics and higher in whites and other races compared to blacks.

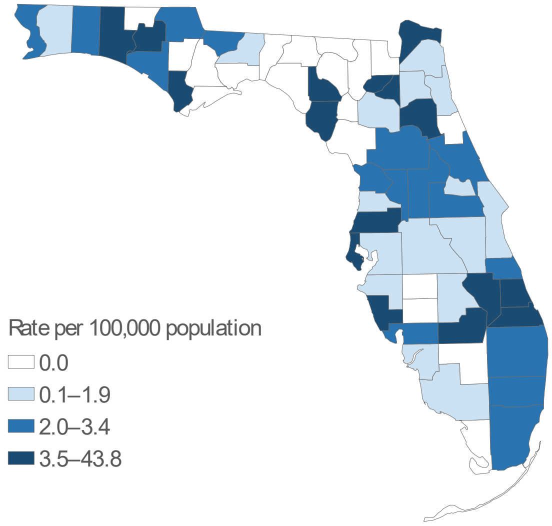


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute hepatitis C cases were missing 25.2% of ethnicity data in 2018 and 16.7% of race data in 2018.

Hepatitis C, Acute

Summary	Number
Number of cases	485
Case Classification	**Number (Percent)**
Confirmed	435 (89.7)
Probable	50 (10.3)
Outcome	**Number (Percent)**
Hospitalized	137 (28.2)
Died	2 (0.4)
Imported Status	**Number (Percent)**
Acquired in Florida	277 (98.9)
Acquired in the U.S., not Florida	3 (1.1)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	205
Outbreak Status	**Number (Percent)**
Sporadic	326 (97.0)
Outbreak-associated	10 (3.0)
Outbreak status unknown	149

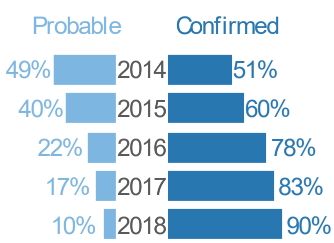
Acute hepatitis C cases were reported in most parts of the state in 2018, though less commonly in the central and eastern parts of the Florida Panhandle. The highest rates (per 100,000 population) occurred in small, rural counties across the state.



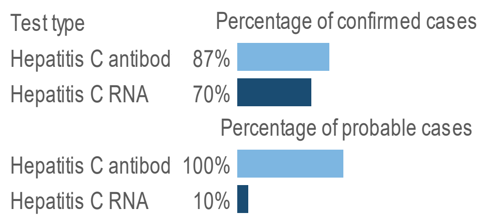
Rates are by county of residence, regardless of where infection was acquired (485 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

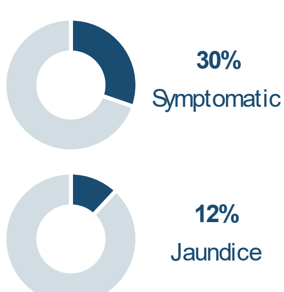
More than 75% of cases are confirmed each year. In 2018, 83% of cases were investigated.



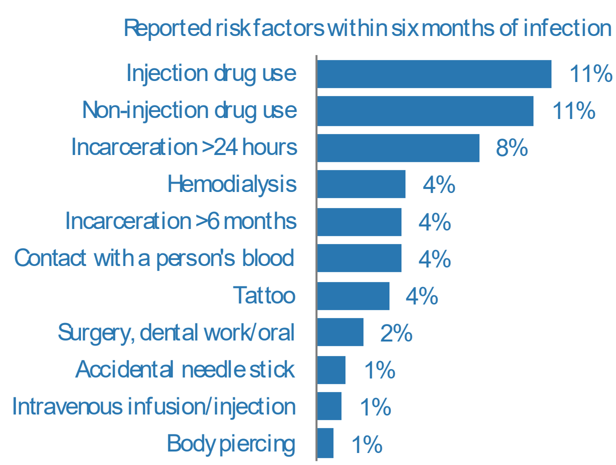
Almost all confirmed cases of acute hepatitis C were positive for hepatitis C antibody, and most were positive for hepatitis C RNA. Only a small portion of probable cases were positive for hepatitis C RNA.



About 1/3 of acute hepatitis C cases reported in 2018 were symptomatic, but only 12% had jaundice.



Similar to past years, the most common risk factors for hepatitis C infection reported in 2018 included injection drug use, non-injection drug use and incarceration. In 2018, the percentage of unknown or missing responses to individual risk ranged from 66% to 76% .



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Hepatitis C, Chronic (Including Perinatal)

Key Points

Hepatitis C incidence is highest among adults 25 to 34 years old. Changes in treatment options for HCV have led to an increased focus on identifying HCV infections. Given the large burden of chronic hepatitis and limited county resources, there have been concerns regarding data completeness and case ascertainment. Earlier data are less reliable. Over the past few years, improvements in electronic laboratory reporting, logic within the surveillance application and expansion of reporting requirements are believed to have improved case ascertainment. Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis C from chronic. Cases that do not meet the clinical criteria for acute hepatitis C or do not have prior negative laboratory results to indicate acute infection are reported as chronic. Chronic cases are not required to be investigated. Given the volume of laboratory results received electronically for which no clinical information is available, it is likely that many acute HCV infections are misclassified as chronic. The high rate of chronic diagnoses in young adults (18 to 25 years old), for example, supports the theory that acute infections are not initially identified. An enhanced surveillance project focusing on chronic infections in young adults was implemented from 2012 through 2016 to help identify risk factors and acute infections.

Disease Facts

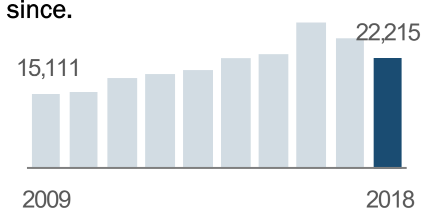
Caused by hepatitis C virus (HCV)

Illness can include chronic liver disease (e.g., cirrhosis and liver cancer), though it is often asymptomatic; 70% to 85% of acute infections in adults become chronic

Transmitted via blood exposure, percutaneous exposure (e.g., tattooing, needle sticks), from mother to child during pregnancy or delivery or rarely through anal or vaginal sex

Under surveillance to prevent HCV transmission, identify acute infections and prevent outbreaks, assist in evaluating the impact of public health interventions and screening programs

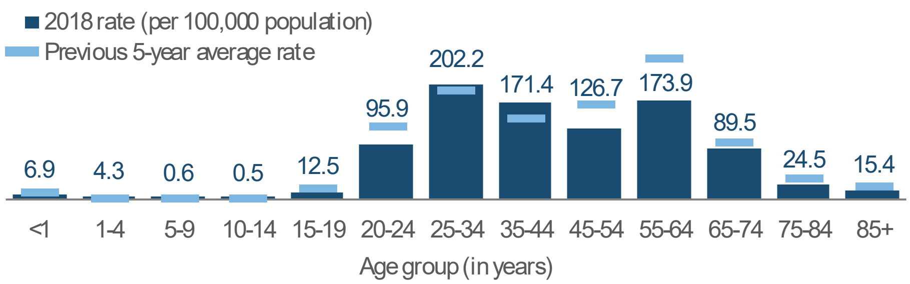
Chronic hepatitis C incidence increased in 2016 due to a case definition expansion but has decreased each year since.



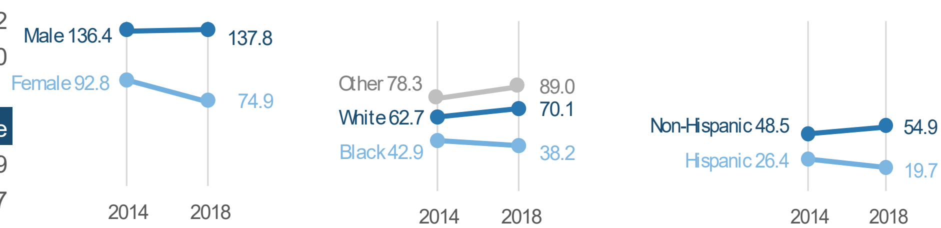
Disease Trends

Summary			
Number of cases			22,215
Rate (per 100,000 population)			106.0
Change from 5-year average rate			-12.6%
Age (in Years)			
Mean			45
Median			44
Min-max			0 - 98
Gender	**Number**	**(Percent)**	**Rate**
Female	8,026	(36.2)	74.9
Male	14,116	(63.8)	137.8
Unknown gender	73		
Race	**Number**	**(Percent)**	**Rate**
White	11,362	(82.5)	70.1
Black	1,356	(9.8)	38.2
Other	1,058	(7.7)	89.0
Unknown race	8,439		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	8,539	(89.0)	54.9
Hispanic	1,060	(11.0)	19.7
Unknown ethnicity	12,616		

The rate of chronic hepatitis C (per 100,000 population) is highest in adults 25 to 34 years old.



The chronic hepatitis C rate (per 100,000 population) is higher in males than females and higher in non-Hispanics than Hispanics. Rates are lower in blacks than in whites and other races. Few chronic cases are investigated, causing a large proportion of race and ethnicity data to be missing.

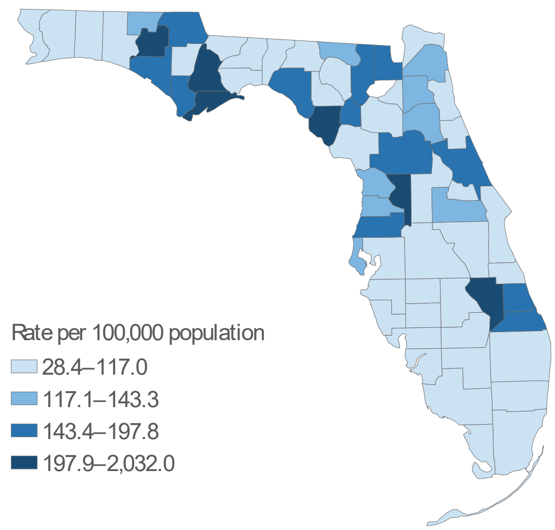


Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Chronic hepatitis C cases (including perinatal) w ere missing 62.2% of ethnicity data in 2014, 47.4% of race data in 2014, 56.8% of ethnicity data in 2018 and 38.0% of race data in 2018.

Hepatitis C, Chronic (Including Perinatal)

Summary	Number
Number of cases	22,215
Case Classification	**Number (Percent)**
Confirmed	16,229 (73.1)
Probable	5,986 (26.9)
Outcome	**Number (Percent)**
Hospitalized	1,325 (6.0)
Died	24 (0.1)
Imported Status	**Number (Percent)**
Acquired in Florida	2,639 (97.2)
Acquired in the U.S., not Florida	42 (1.5)
Acquired outside the U.S.	35 (1.3)
Acquired location unknown	19,499
Outbreak Status	**Number (Percent)**
Sporadic	4,622 (98.3)
Outbreak-associated	81 (1.7)
Outbreak status unknown	17,512

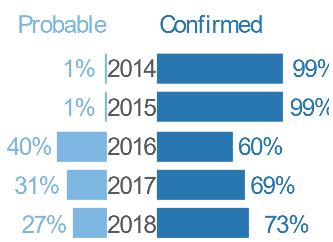
Chronic hepatitis C occurred throughout the state in 2018 with the highest rates in small counties in northern and central Florida, particularly in the Panhandle.



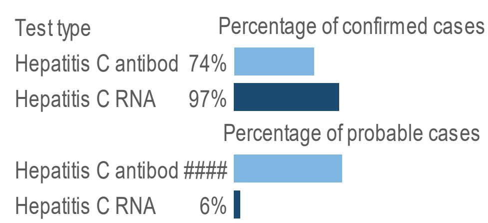
Rates are by county of residence, regardless of where infection was acquired (22,215 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

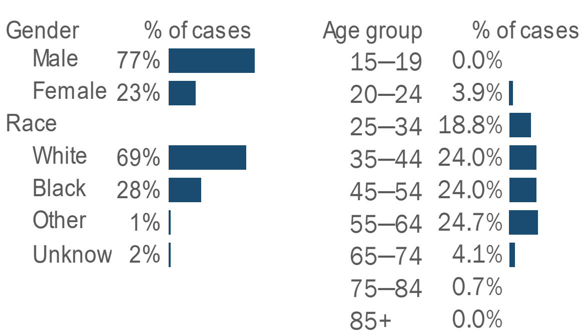
Almost 75% of chronic hepatitis C cases were confirmed in 2018. The probable case classification expanded in 2016, resulting in a large increase in probable cases.



Almost all confirmed cases of chronic hepatitis C were positive for hepatitis C ribonucleic acid (RNA) **and most were positive for hepatitis C antibody in 2018.** Only a small portion of probable cases were positive for hepatitis C RNA.

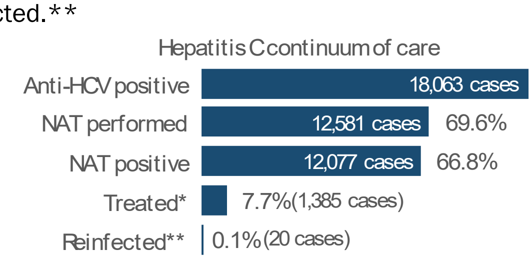


In 2018, 442 (2%) chronic hepatitis C cases were also diagnosed with HIV. The majority of people with co-infections were male, white and 55 to 64 years old.



Order of infection can not be determined from these charts. Race and ethnicity data are from the enhanced HIV/AIDS Reporting System as demographic data were more complete for these cases.

Of chronic hepatitis C cases positive for hepatitis C antibody (anti-HCV) in 2018 (18,063 cases), 67% had a positive nucleic acid test (NAT) to detect hepatitis C RNA. Less than 10% of anti-HCV positive cases were treated,* and very few cases were reinfected.**



*The number treated was calculated as a positive NAT result followed by two negative NAT results, all of which were ≥30 days apart.

**The number reinfected was calculated as a negative NAT result followed by a positive NAT result ≥30 days later.

See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

HIV/AIDS

Key Points

HIV is a life-threatening infection that attacks the body's immune system and leaves a person vulnerable to opportunistic infections. The Centers for Disease Control and Prevention estimates that 1.2 million people are living with HIV (prevalence) in the U.S., nearly half of whom live in the southern U.S. Florida is a large state in the south with a diverse population, substantial HIV morbidity and unique challenges with respect to HIV/AIDS (acquired immunodeficiency syndrome) surveillance, prevention and patient care.

HIV incidence (new diagnoses) has been gradually increasing since 2013. Rates are consistently highest in adults 20 to 34 years old. In 2018, male-to-male sexual contact continued to account for most (74%) HIV diagnoses among males.

Untreated, HIV can continue to weaken the immune system and develop into AIDS. Florida observed a 50% decrease in AIDS diagnoses from 2009 to 2018, indicating an increase in testing and diagnosis of individuals earlier in disease stage, along with linkage to care, retention in care and maintaining a suppressed viral load.

Disease Facts

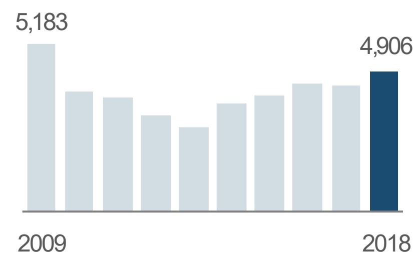
Caused by human immunodeficiency virus (HIV)

Illness is flu-like primary infection; AIDS is defined as HIV with CD4 count <200 cells/µL or occurrence of opportunistic infection

Transmitted via anal or vaginal sex, blood exposure (e.g., sharing injection drug needles, receiving infected blood transfusion [rare due to donor screening]) or vertically during pregnancy, delivery or breastfeeding

Under surveillance to enhance efforts to prevent HIV transmission, improve allocation of resources for treatment services, assist in evaluating the impact of public health interventions

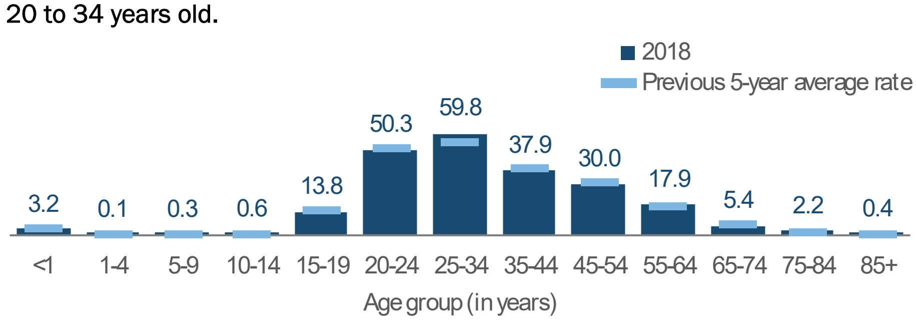
HIV incidence has been gradually increasing since 2013.



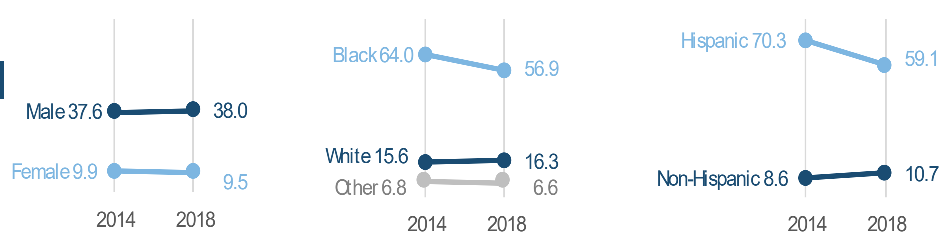
Disease Trends

Summary			
Number of diagnoses			4,906
Rate (per 100,000 population)			23.4
Change from 5-year average rate			+0.6%
Age (in Years)			
Mean			37
Median			34
Min-max			0 - 94
Gender	**Number**	**(Percent)**	**Rate**
Female	1,014	(20.7)	9.5
Male	3,892	(79.3)	38.0
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	2,645	(55.8)	16.3
Black	2,020	(42.6)	56.9
Other	79	(1.7)	6.6
Unknown race	162		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	1,666	(34.3)	10.7
Hispanic	3,187	(65.7)	59.1
Unknown ethnicity	53		

HIV incidence rates (per 100,000 population) are consistently highest in adults 20 to 34 years old.



In 2018, HIV incidence rates (per 100,000 population) were 4.0 times higher among males than females and 3.5 times higher among blacks than whites.



HIV/AIDS

Male-to-male sexual contact was the primary mode of exposure among males who received an HIV diagnosis in 2018 (74%), and heterosexual contact was the primary mode of exposure among females (89%) who received an HIV diagnosis in 2018.

Mode of exposure	Female		Male	
Male-to-male sexual contact (MMSC)	NA	NA	2,875	73.9%
Heterosexual contact	903	89.0%	741	19.0%
Injection drug use (IDU)	100	9.9%	138	3.6%
MMSC and IDU	NA	NA	105	2.7%
Pediatric transmission	9	0.9%	9	0.2%
Transgender sexual contact	2	0.2%	24	0.6%
Total	1,014		3,892	

Note: Pediatric transmission includes perinatal exposure and pediatric diagnoses without a confirmed mode of exposure. Transgender sexual contact includes transgender males or females whose mode of exposure was sexual contact.

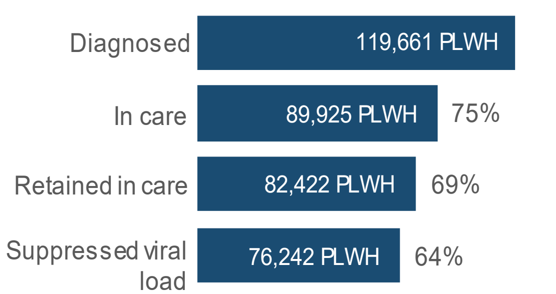
Race/ethnicity	Female	Male
White	3.5	18.1
Black	34.1	86.0
Hispanic	8.0	54.4

In 2018, the HIV incidence rate (per 100,000 population) among black females was 9.7 times higher than white females. The rate among black males was 4.8 times higher than white males, while the rate in Hispanic males was 3.0 times higher than white males.

The HIV care continuum reflects the series of steps a person living with an HIV diagnosis takes from initial diagnosis to being retained in care and achieving a very low level of HIV in the body (viral suppression). Persons living with HIV (PLWH) with a suppressed viral load (less than 200 copies/mL) are highly unlikely to transmit the virus.

There were 119,661 PLWH in Florida in 2018, 69% of whom were retained in care and 64% of whom had a suppressed viral load.

Percentage of persons living with HIV (PLWH)



HIV care continuum definitions

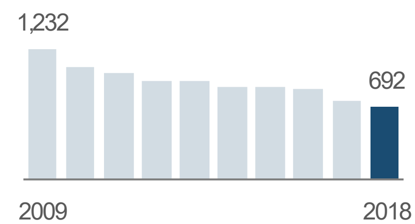
In care: documented HIV-related care at least once in 2018

Retained in care: documented HIV-related care at least two times, at least three months apart in 2018

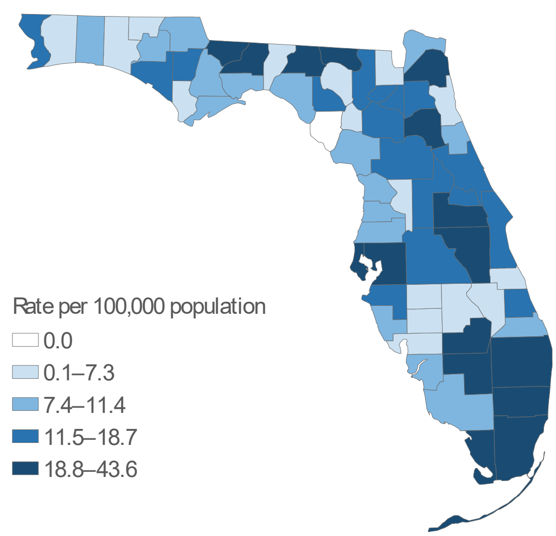
Suppressed viral load: less than 200 copies/mL

HIV was the ninth leading cause of death for people 24 to 44 years old in Florida in 2018. Following the advent of antiretroviral therapy, there has been an 84% decline in Florida resident deaths due to HIV from 1995 (4,336 deaths) to 2018 (692 deaths).

Deaths due to HIV decreased by 44% from 2009 to 2018 and by 8% since 2017 alone.



High HIV incidence rates (per 100,000 population) occurred in the central and southeastern parts of the state in 2018. Almost 50% of diagnoses were in three counties, including Miami-Dade (1,224 diagnoses), Broward (661 diagnoses) and Orange (500 diagnoses).



Rates are by county of residence, regardless of where infection was acquired and excluding Florida Department of Corrections diagnoses (4,809 diagnoses). Rates based on <20 diagnoses are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of diagnoses in 2018 by county.

To access more information on HIV surveillance, visit FloridaHealth.gov/diseases-and-conditions/aids/surveillance/index.html.

To find a care provider or to learn more about the resources available to persons living with HIV, visit FloridaHealth.gov/diseases-and-conditions/aids/index.html.

Lead Poisoning in Children <6 Years Old

Key Points

Lead poisoning is most often identified in children as part of routine screening. The Centers for Medicare and Medicaid Services requires blood lead screening in all Medicaid-enrolled children at 12 and 24 months old; if not previously screened, children must be screened between 24 and 72 months old. The Centers for Disease Control and Prevention recommends all children who are foreign-born or otherwise identified as high-risk be screened for lead. Children in this age group are more likely to put lead-contaminated hands, toys or paint chips in their mouths, making them more vulnerable to lead poisoning than older children. The most common sources of lead exposure for children include paint dust, flakes or chips in houses built prior to the elimination of lead in paints in 1978. Less common sources include glazed ceramic dishes, toys or jewelry, parental occupations or hobbies involving lead and folk medicines or cosmetics from other countries.

In 2017, Florida lowered the blood lead level for lead poisoning from ≥10 to ≥5 µg/dL to align with current national guidelines based on the adverse health effects caused by blood lead levels <10 µg/dL in both children and adults. The large increase in cases in 2017 was driven by cases with blood lead levels ≥5 and <10 µg/dL, which accounted for 77% of 2017 cases. Prior to 2010, lead poisoning case data were primarily stored outside the state's reportable disease surveillance system; therefore, only cases from 2010 to 2018 are presented here.

Disease Facts

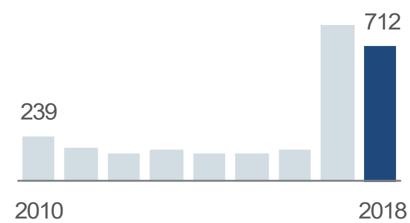
Caused by lead

Illness includes a wide range of adverse health effects (e.g., difficulty learning, sluggishness, fatigue, seizures, coma, death)

Exposure is most commonly by ingestion of paint dust in houses built prior to elimination of lead in paints in 1978

Under surveillance to estimate burden among children, ensure follow-up care for identified cases, identify need for environmental remediation to prevent new cases and exacerbation of illness, help target public health interventions

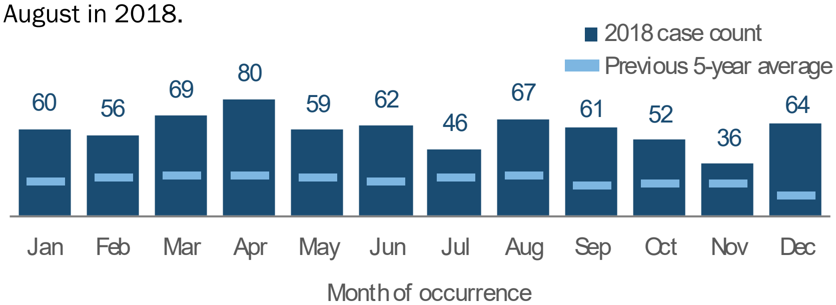
Lead poisoning incidence increased dramatically in 2017 due to a case definition expansion. Incidence decreased in 2018.



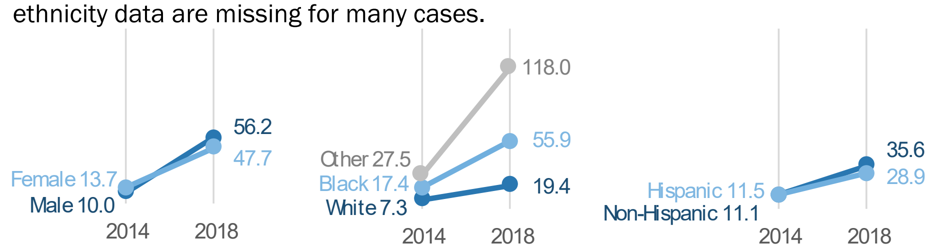
Disease Trends

Summary			
Number of cases			712
Rate (per 100,000 population)			52.0
Change from 5-year average rate			+137.0%
Age (in Years)			
Mean			2
Median			2
Min-max			0 - 5
Gender	**Number**	**(Percent)**	**Rate**
Female	319	(44.8)	47.7
Male	393	(55.2)	56.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	183	(37.0)	19.4
Black	171	(34.6)	55.9
Other	140	(28.3)	118.0
Unknown race	218		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	332	(72.5)	35.6
Hispanic	126	(27.5)	28.9
Unknown ethnicity	254		

Lead poisoning in children <6 years old occurs throughout the year, with no distinct seasonality. The highest number of cases were reported in March, April and August in 2018.



Compared to lead poisoning in adults, where occupational exposure results in much higher incidence rates in men than women, rates (per 100,000 population) in children <6 years old are more similar in males and females. The rate is higher in blacks and other races than in whites, but similar by ethnicity. Because few cases with blood lead levels ≥5 and <10 µg/dL are investigated, race and ethnicity data are missing for many cases.

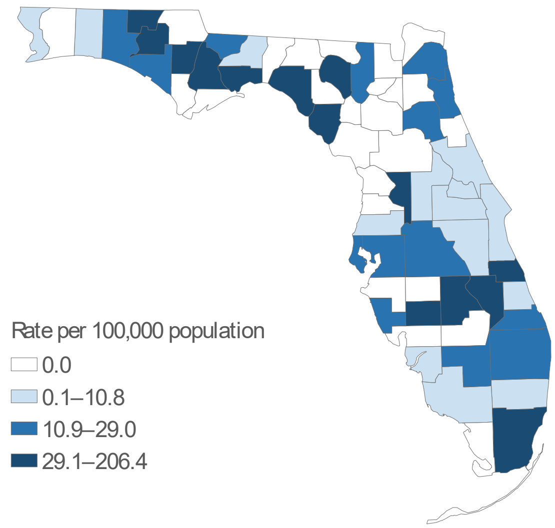


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lead poisoning cases in children less than 6 years old were missing 5.2% of ethnicity data in 2014, 35.7% of ethnicity data in 2018 and 30.6% of race data in 2018.

Lead Poisoning in Children <6 Years Old

Summary	Number
Number of cases	712
Outcome	**Number (Percent)**
Hospitalized	3 (0.4)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	225 (88.9)
Exposed in the U.S., not Florida	5 (2.0)
Exposed outside the U.S.	23 (9.1)
Exposed location unknown	459
Outbreak Status	**Number (Percent)**
Sporadic	325 (94.2)
Outbreak-associated	20 (5.8)
Outbreak status unknown	367
Age Group	**Number (Percent)**
Children (<6 years old)	712 (35.6)
Adult (≥6 years old)	1,290 (64.4)

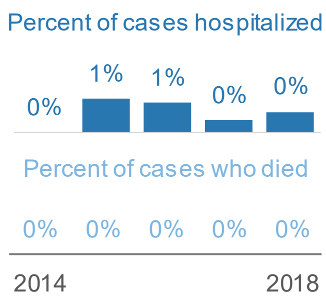
Lead poisoning in children <6 years old occurred in most parts of the state in 2018. The lead poisoning rates (per 100,000 population) are typically highest in small, rural counties.



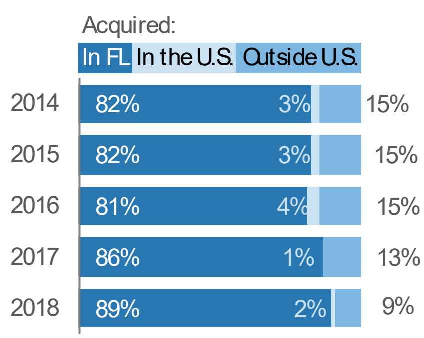
Rates are by county of residence for cases exposed in Florida (225 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

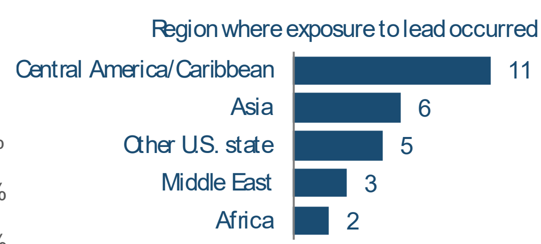
More Disease

Hospitalizations and deaths in children <6 years old with lead poisoning are rare.

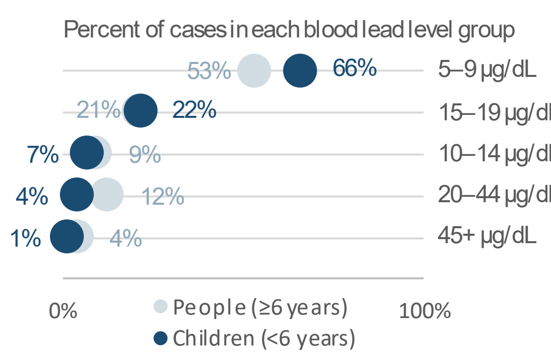


For cases known to be exposed outside Florida, Central America/Caribbean is the most common region where lead exposure occurred. As 75% of cases have blood lead levels ≥5 and <10 µg/dL and are not investigated, the location of exposure is unknown for 79% of cases.

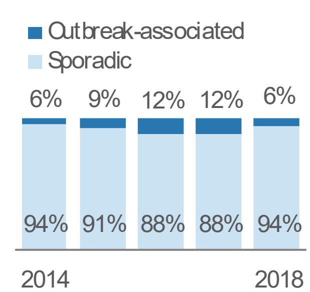




Children <6 years old have a larger proportion of cases that are ≥5 and <10 µg/dL compared to adults (66% versus 53%, respectively). Lead poisoning cases in adults are primarily identified through occupational testing, and they tend to have higher blood lead levels than children.



Most lead poisoning cases are sporadic. In 2018, there were 20 outbreak-associated cases associated with 16 different small household clusters, each ranging from two to four cases. Common exposures included imported food and spices, lead-based paint and persons who brought lead into the home from work or hobbies that involve lead exposure.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Lead Poisoning in People ≥6 Years Old

Key Points

Adult lead poisoning is primarily caused by exposure to lead in the workplace or during certain activities where lead is used. High-risk occupations include battery manufacturing, painting, nonferrous smelting, radiator repair, scrap metal recycling, work at firing ranges and construction and renovation. High-risk activities include recreational target shooting, home remodeling, casting bullets and fishing weights, making stained glass and consuming traditional remedies. The Occupational Safety and Health Administration requires regular lead screening for employees in high-risk occupations, making occupational lead poisoning cases more easily identifiable. Adults with non-occupational exposures are unlikely to be tested, making identification difficult.

In 2017, Florida lowered the blood lead level for lead poisoning from ≥10 µg/dL to ≥5 µg/dL to align with current national guidelines based on the adverse health effects caused by blood lead levels <10 µg/dL in both children and adults. The large increase in cases in 2017 was driven by cases with blood lead levels ≥5 and <10 µg/dL, which accounted for 57% of 2017 cases. Prior to 2010, lead poisoning case data were primarily stored outside Florida's reportable disease surveillance system; therefore, only cases from 2010 to 2018 are presented here.

Disease Facts

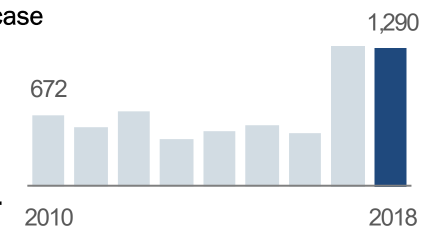
Caused by lead

Illness includes a wide range of adverse health effects (e.g., arthralgia, headache, cognitive dysfunction, adverse reproductive outcomes, renal failure, hypertension, encephalopathy) but is often asymptomatic

Exposure is by inhalation or ingestion of lead, most often dust or fumes that occur when lead is melted

Under surveillance to identify cases among adults with high-risk occupations or hobbies, need for environmental remediation to prevent new cases and exacerbation of illness, prevent take-home lead exposures, help target public health interventions for high-risk populations

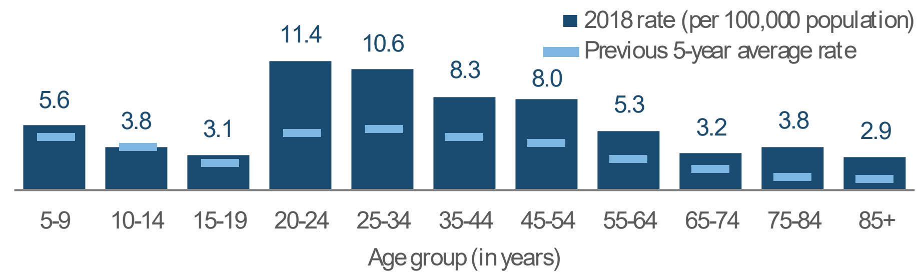
Lead poisoning incidence increased dramatically in 2017 due to a case definition expansion. Incidence decreased slightly in 2018.



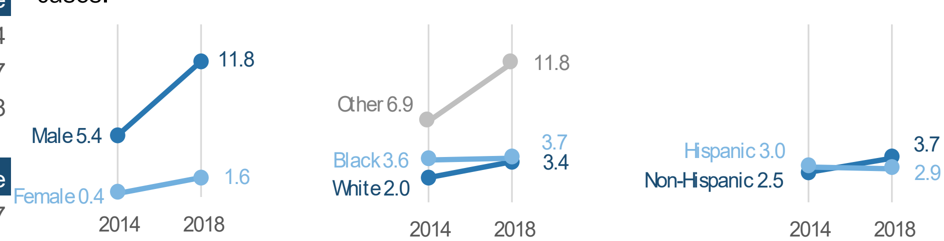
Disease Trends

The rate (per 100,000 population) of lead poisoning in people >6 years old is highest in adults 20 to 24 years old, followed by adults 25 to 34 years old.

Summary			
Number of cases			1,290
Rate (per 100,000 population)			6.6
Change from 5-year average rate			+85.1%
Age (in Years)			
Mean			40
Median			38
Min-max			6 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	164	(12.7)	1.6
Male	1,123	(87.3)	11.8
Unknown gender	3		
Race	**Number**	**(Percent)**	**Rate**
White	518	(67.8)	3.4
Black	120	(15.7)	3.7
Other	126	(16.5)	11.8
Unknown race	526		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	543	(79.0)	3.7
Hispanic	144	(21.0)	2.9
Unknown ethnicity	603		



The rate (per 100,000 population) of lead poisoning in people ≥6 years old is notably higher in males than females, likely due to the type of occupations and hobbies that result in lead exposure. The rate is similar by ethnicity and in blacks and whites, but is higher in other races. Since few cases with blood lead levels ≥5 and <10 µg/dL are investigated, race and ethnicity data are missing for many cases.

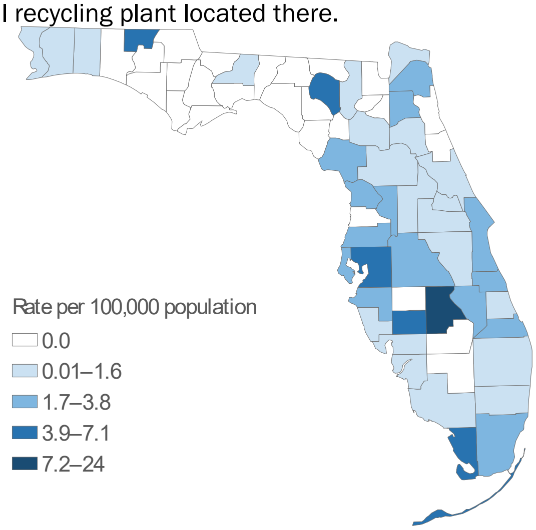


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lead poisoning cases in people more than 6 years old were missing 7.8% of ethnicity data in 2014, 10.3% of race data in 2014, 46.7% of ethnicity data in 2018 and 40.8% of race data in 2018.

Lead Poisoning in People ≥6 Years Old

Summary	Number
Number of cases	1,290
Outcome	**Number (Percent)**
Hospitalized	7 (0.5)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	396 (92.1)
Exposed in the U.S., not Florida	14 (3.3)
Exposed outside the U.S.	20 (4.7)
Exposed location unknown	860
Outbreak Status	**Number (Percent)**
Sporadic	535 (95.7)
Outbreak-associated	24 (4.3)
Outbreak status unknown	731
Age Group	**Number (Percent)**
Children (<6 years old)	712 (35.6)
Adult (≥6 years old)	1,290 (64.4)

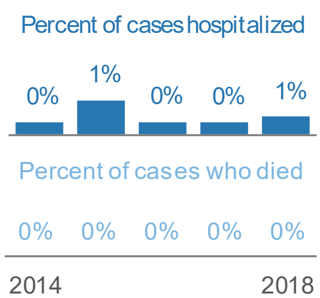
Lead poisoning in people ≥6 years old occurred in most parts of the state in 2018, though there are fewer counties with cases in the Panhandle region. Hillsborough County has the largest number of reported cases due to occupational screening at a large battery and metal recycling plant located there.



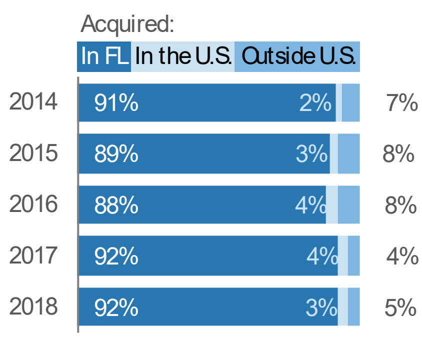
Rates are by county of residence for cases exposed in Florida (396 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

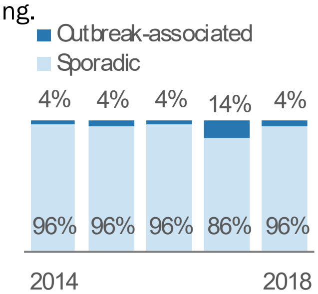
Hospitalizations and deaths in people ≥6 years old with lead poisoning are rare.



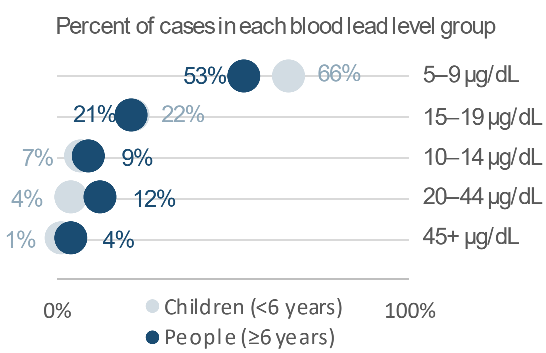
Of cases where the exposure location was known, most were exposed in Florida.



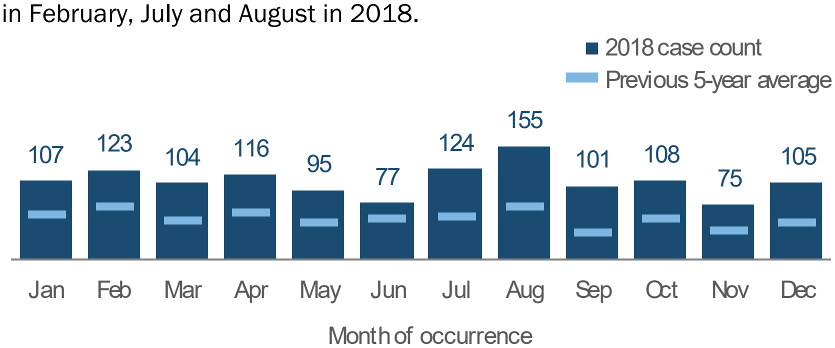
Most lead poisoning cases are sporadic. In 2018, 24 outbreak-associated cases were identified. Most cases (58%) were exposed from recreational target shooting.



Lead poisoning cases in adults are primarily identified through occupational testing and they tend to have higher blood lead levels than children.



Lead poisoning cases in people ≥6 years old occur throughout the year, with no distinct seasonality. The highest number of cases were reported in February, July and August in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Legionellosis

Key Points

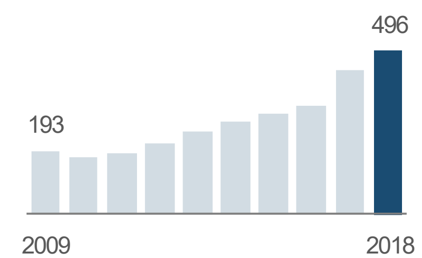
Recently identified sources of *Legionella* infection in Florida and the U.S. include decorative fountains, hot tubs, cooling towers (air conditioning units for large buildings) and potable water systems. Increasing incidence in Florida is consistent with the increase observed nationally over the past decade. This increase is likely due to a number of factors, including aging infrastructure and a greater percentage of the population aged ≥64 years. Older adults and those with weakened immune systems are at highest risk for developing disease.

Disease Facts

- **Caused** by *Legionella* bacteria
- **Illness** includes fever, muscle pain, cough and shortness of breath; pneumonia can occur
- **Transmitted** by inhaling aerosolized water containing the bacteria
- **Under surveillance** to identify and control outbreaks, identify and mitigate common reservoirs, monitor incidence over time, estimate burden of illness

In Florida, sporadic cases of both Legionnaires' disease and Pontiac fever (two distinct presentations of legionellosis) are monitored. Single cases of legionellosis that occur at a health care facility or other facility where a person spent their entire exposure period warrant a full investigation and are generally characterized as outbreaks for public health purposes. However, these cases are not consistently classified as outbreak-associated and therefore not all cases are reflected in the table on the following page.

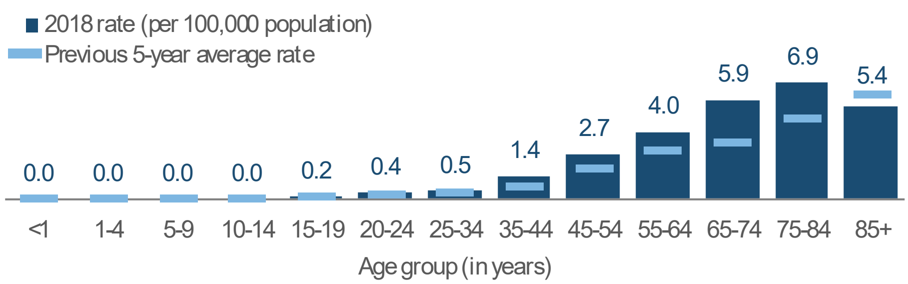
Legionellosis incidence continued to increase in 2018.



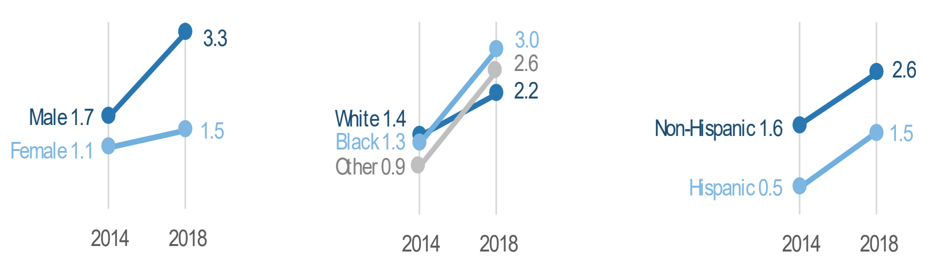
Disease Trends

Summary			
Number of cases			496
Rate (per 100,000 population)			2.4
Change from 5-year average rate			+47.9%
Age (in Years)			
Mean			64
Median			65
Min-max			18 - 97
Gender	**Number**	**(Percent)**	**Rate**
Female	158	(31.9)	1.5
Male	338	(68.1)	3.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	357	(72.3)	2.2
Black	106	(21.5)	3.0
Other	31	(6.3)	2.6
Unknown race	2		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	402	(83.4)	2.6
Hispanic	80	(16.6)	1.5
Unknown ethnicity	14		

Legionellosis is most common in older adults. The rate (per 100,000 population) begins increasing in middle-aged adults and continues to increase with age.



The legionellosis rate (per 100,000 population) has increased in all demographics from 2014 to 2018. Rates were higher in males and non-Hispanics, but generally similar by race in 2018.

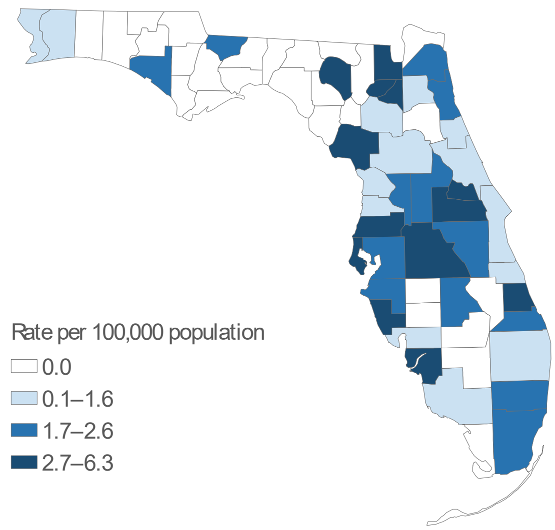


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Legionellosis cases were missing 5.4% of ethnicity data in 2014.

Legionellosis

Summary	Number
Number of cases	496
Outcome	**Number (Percent)**
Hospitalized	483 (97.4)
Died	47 (9.5)
Imported Status	**Number (Percent)**
Acquired in Florida	433 (95.8)
Acquired in the U.S., not Florida	13 (2.9)
Acquired outside the U.S.	6 (1.3)
Acquired location unknown	44
Outbreak Status	**Number (Percent)**
Sporadic	459 (93.7)
Outbreak-associated	31 (6.3)
Outbreak status unknown	6

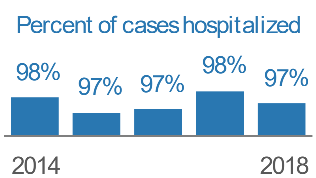
Legionellosis occurred in most parts of the state in 2018, but is notably absent from most counties in the Panhandle.

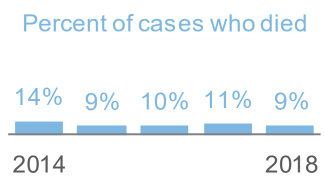


Rates are by county of residence for infections acquired in Florida (433 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

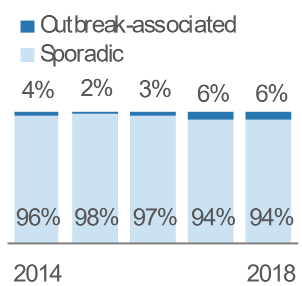
More Disease

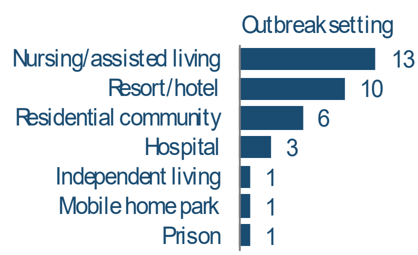
Most legionellosis cases are hospitalized, and deaths do occur. Those primarily affected are older adults and people with underlying conditions. Pneumonia is commonly identified among cases.



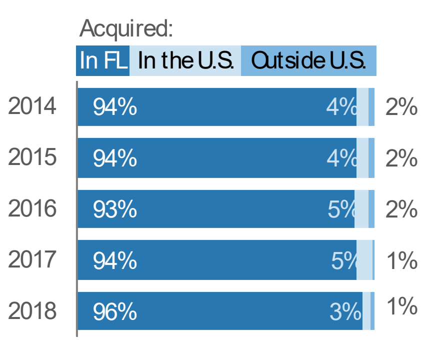


In 2018, 35 outbreaks were identified, some of which included non-Florida residents (who are not included in counts in this report). Nursing homes and assisted living facilities were the most commonly identified outbreak settings.

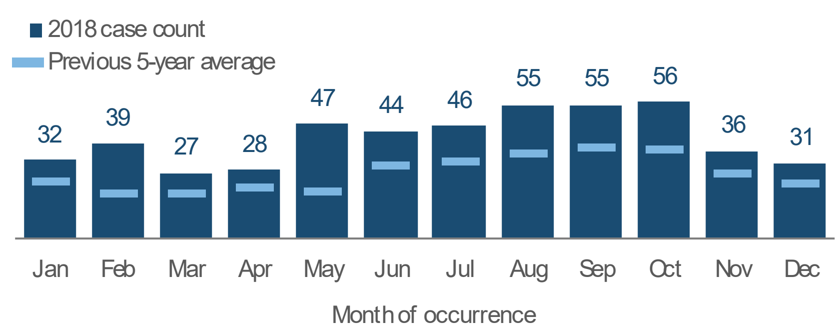




Between 93% and 96% of *Legionella* infections are acquired in Florida; some infections were imported from other states and countries.



Legionellosis cases increase slightly in the summer and early fall months with 46 to 56 cases reported each month from July to October 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Listeriosis

Key Points

Listeriosis primarily affects adults ≥75 years old, people with weakened immune systems, pregnant women and infants born to infected mothers. Listeriosis is of particular concern for pregnant women because infection during pregnancy can cause fetal loss, preterm labor, stillbirths and illness or death in newborn infants.

Historically, *Listeria* outbreaks have been linked to deli meats and hot dogs; however, new vehicles have been identified as sources of outbreaks including soft cheeses, frozen vegetables, sprouts, raw milk, melons, caramel apples, smoked seafood and ice cream.

Disease Facts

Caused by *Listeria monocytogenes* bacteria

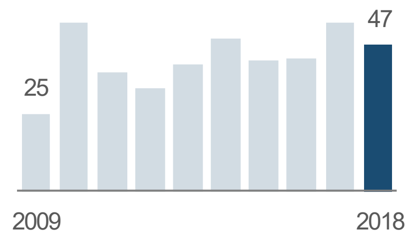
Illness is usually invasive when bacteria have spread beyond gastrointestinal tract; initial illness is often characterized by fever and diarrhea

Transmission is foodborne; can be transmitted to fetus during pregnancy

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product), monitor incidence over time, estimate burden of illness, reduce stillbirths

Whole genome sequencing (WGS) is now used to determine whether *Listeria* isolates are related, indicating the illnesses may have come from the same source. The Centers for Disease Control and Prevention monitors WGS data from across the country to identify clusters of possibly related cases. In 2018, Florida identified four cases associated with four different multistate outbreaks. While none of these outbreaks had an exposure source identified, one outbreak resulted in new linkages to two Florida cases reported in 2013.

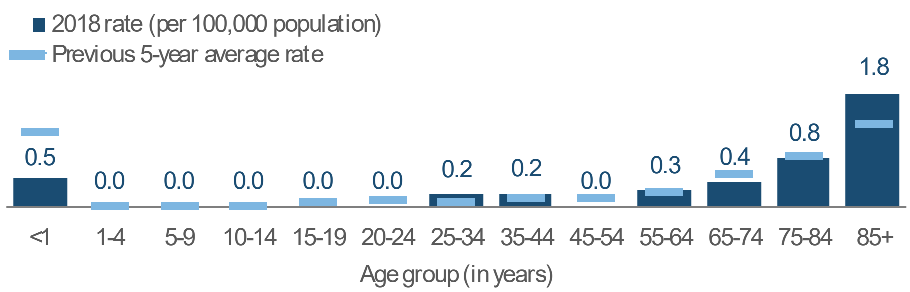
The number of listeriosis cases reported annually ranges from 25 to 54.



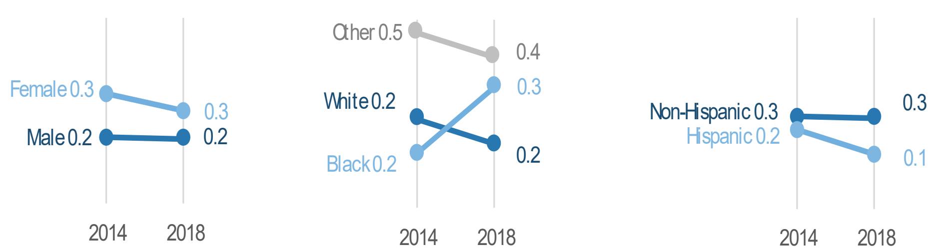
Disease Trends

Summary			
Number of cases			47
Rate (per 100,000 population)			0.2
Change from 5-year average rate			-2.4%
Age (in Years)			
Mean			65
Median			69
Min-max			0 - 95
Gender	**Number**	**(Percent)**	**Rate**
Female	28	(59.6)	0.3
Male	19	(40.4)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	29	(63.0)	0.2
Black	12	(26.1)	NA
Other	5	(10.9)	NA
Unknown race	1		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	39	(83.0)	0.3
Hispanic	8	(17.0)	NA
Unknown ethnicity	0		

The listeriosis rate (per 100,000 population) is highest in infants (who can acquire infection from the mother during pregnancy) and adults ≥75 years old.



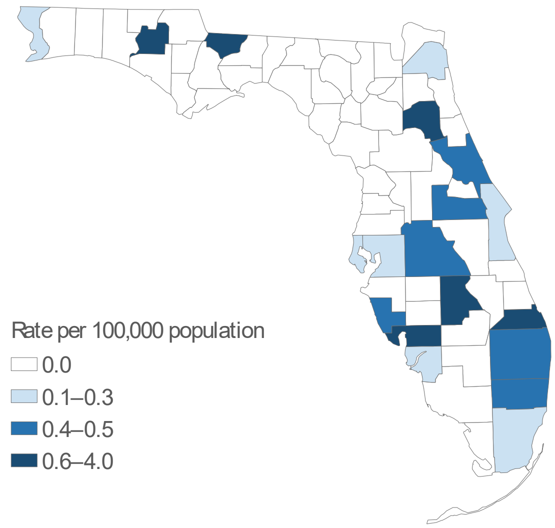
The listeriosis rate (per 100,000 population) was similar by gender, race and ethnicity in 2018. Most demographics remained stable from 2014 to 2018, except for other races and Hispanics who decreased slightly and blacks who increased slightly.



Listeriosis

Summary	Number
Number of cases	47
Outcome	**Number (Percent)**
Hospitalized	46 (97.9)
Died	9 (19.1)
Imported Status	**Number (Percent)**
Acquired in Florida	44 (97.8)
Acquired in the U.S., not Florida	1 (2.2)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	2
Outbreak Status	**Number (Percent)**
Sporadic	40 (85.1)
Outbreak-associated	6 (12.8)
Outbreak status unknown	1

Listeriosis did not have a geographic pattern in 2018. Rates (per 100,000 population) were highest in small, rural counties in different parts of the state.

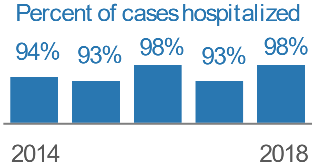


Rates are by county of residence for infections acquired in Florida (44 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

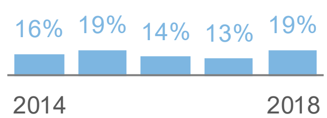
More Disease

Most listeriosis cases are hospitalized; deaths do occur. Those primarily affected are older adults who likely have underlying conditions.

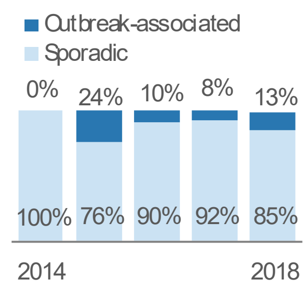
Percent of cases hospitalized



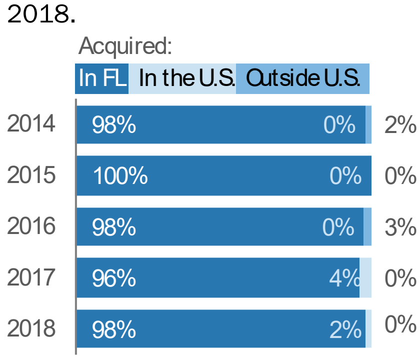
Percent of cases who died



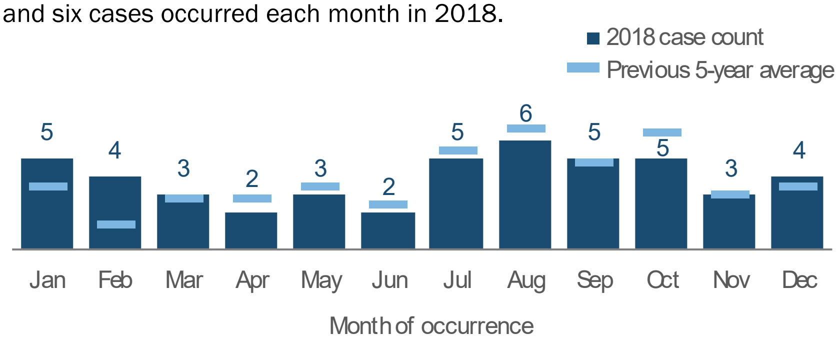
Each year, a few cases are linked to multistate outbreaks through whole genome sequencing. Four cases reported in 2018 matched multistate outbreaks.



Most *Listeria* infections are acquired in Florida; one infection was acquired from Puerto Rico in 2018.



Listeriosis cases occur all year and do not exhibit a strong seasonality; however, low case counts make it difficult to interpret trends. Between two and six cases occurred each month in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Lyme Disease

Key Points

Lyme disease is the most common tick-borne disease in the U.S. The Centers for Disease Control and Prevention estimates that about 300,000 Lyme disease cases are reported each year. Nationally, Lyme disease cases are concentrated in the Northeast and upper Midwest, with 14 states accounting for over 96% of reported cases each year.

Lyme disease incidence in Florida has generally increased over the past decade. This increase may be due to increases in animal host and reservoir populations and the slowly expanding geographic range of the vector tick due to ecological factors. In 2018, incidence of Lyme disease decreased slightly from 2017, falling below the previous five-year average incidence.

Disease Facts

Caused by *Borrelia burgdorferi* bacteria

Illness can be acute or late manifestation; both can include fever, headache, fatigue, joint pain, muscle pain, bone pain and erythema migrans (characteristic bull's-eye rash); late manifestation can also include Bell's palsy, severe joint pain with swelling, shooting pain, tingling in hands and feet, irregular heartbeat, dizziness, shortness of breath and short-term memory loss

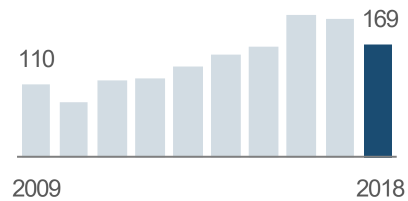
Transmitted via bite of infective *Ixodes scapularis* tick

Under surveillance to monitor incidence over time, estimate burden of illness and degree of endemicity, target areas of high incidence for prevention education

While most Florida cases are acquired during travel to other U.S. states, a growing number of cases were acquired outside the U.S. in 2018, primarily in Europe (one case each from the Czech Republic, Germany, Hungary, Romania, Sweden and Italy or Spain) and Canada (two cases).

There were 75 acute and 94 late-manifestation Lyme disease cases reported in 2018. Three Lyme disease cases were co-infected with *Babesia*. Case counts and rates from this report may differ from those found in other tick-borne disease reports as different criteria are used to assemble the data.

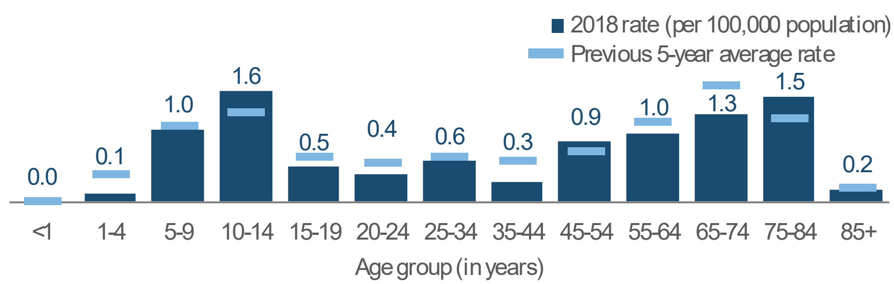
Lyme disease incidence in 2018 decreased slightly from 2017.



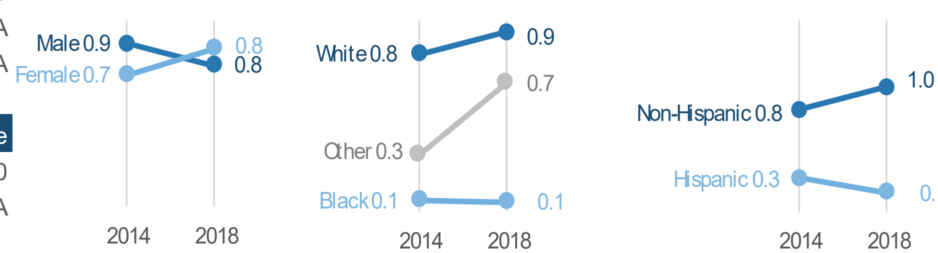
Disease Trends

In 2018, the Lyme disease rate (per 100,000 population) was highest in adolescents 10 to 14 years old, followed by adults 75 to 84 years old and 65 to 74 years old. The rate in 2018 was notably lower than the previous five-year average rate for adults 35 to 44 years old and 65 to 74 years old.

Summary		
Number of cases		169
Rate (per 100,000 population)		0.8
Change from 5-year average rate		-9.0%
Age (in Years)		
Mean		47
Median		54
Min-max		4 - 89
Gender	**Number (Percent)**	**Rate**
Female	91 (53.8)	0.8
Male	78 (46.2)	0.8
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	152 (93.8)	0.9
Black	2 (1.2)	NA
Other	8 (4.9)	NA
Unknown race	7	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	152 (95.0)	1.0
Hispanic	8 (5.0)	NA
Unknown ethnicity	9	



In 2018, the Lyme disease rate (per 100,000 population) was similar by gender groups, but higher in non-Hispanics. The rate was highest in whites, followed by other races, then blacks. The rate increased from 2014 to 2018 in all demographics except for males, blacks and Hispanics, which remained stable or decreased slightly.

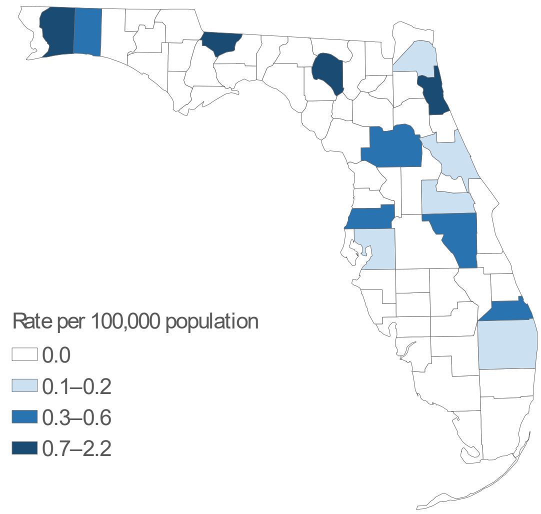


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lyme disease cases were missing 15.5% of ethnicity data in 2014, 15.5% of race data in 2014 and 5.3% of ethnicity data in 2018.

Lyme Disease

Summary	Number
Number of cases	169
Case Classification	**Number (Percent)**
Confirmed	98 (58.0)
Probable	71 (42.0)
Outcome	**Number (Percent)**
Hospitalized	17 (10.1)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	18 (12.6)
Acquired in the U.S., not Florida	117 (81.8)
Acquired outside the U.S.	8 (5.6)
Acquired location unknown	26
Outbreak Status	**Number (Percent)**
Sporadic	169 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

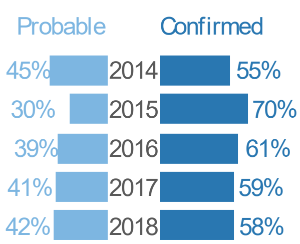
Lyme disease is primarily imported from other U.S. states where it is highly endemic; however, 18 infections were acquired in Florida in 2018. Four cases were reported in St. Johns County and two were reported in Santa Rosa County. The remaining 12 counties each had one case reported.



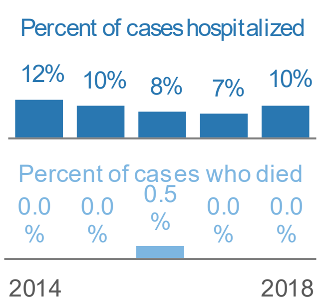
Rates are by county of residence for infections acquired in Florida (18 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

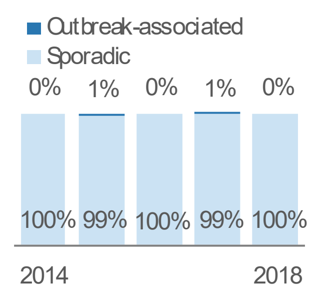
Between 55% and 70% of cases are confirmed annually; 58% of 2018 cases were confirmed.



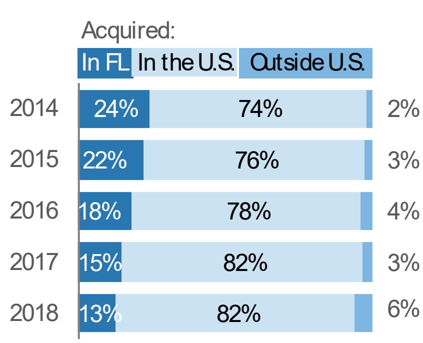
The hospitalization rate for people with Lyme disease is low; deaths are rare.



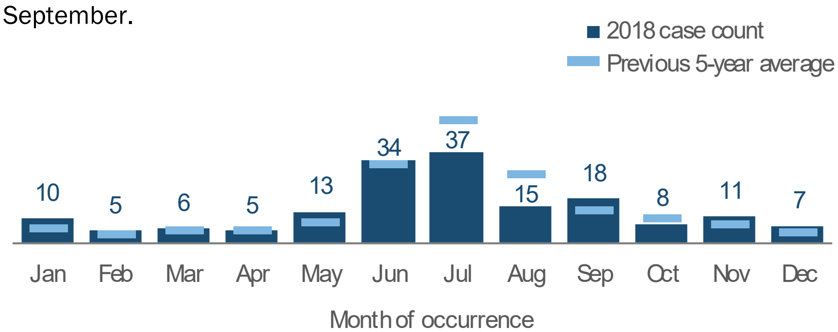
Almost all Lyme disease cases are sporadic.



Lyme disease is primarily imported from other U.S. states where it is highly endemic. Eight cases in 2018 were imported from other countries.



Lyme disease cases are reported year-round, but there is a strong seasonal peak in the summer. In 2018, 62% of cases occurred from June to September.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Malaria

Key Points

Imported malaria cases peaked in 2010 after the January 2010 earthquake in Haiti resulted in an influx of Haitians in Florida. The number of cases imported from Central America and the Caribbean has increased in recent years, though more cases are still infected in Africa. Excluding one, all cases in 2018 were among people traveling to countries with endemic transmission (primarily African countries) while visiting friends and relatives.

One 2018 case had illness onset in 2017, but was not identified and reported as a case until 2018. This person donated bone marrow to a sibling, resulting in a bone marrow transplant-associated malaria infection in Florida. The donor had traveled to Ghana 1.5 years before the donation. Upon returning, the donor reported malaria-like symptoms; blood smears at the time were negative. The recipient developed fever 15 days after the transplant. Additional testing indicated that the donor had a low level of parasitemia.

It is important to note that infected residents and non-residents pose a potential malaria introduction risk since the malaria vector *Anopheles quadrimaculatus* is common in Florida; however, cases in non-Florida residents are not included in counts in this report. In 2018, 12 non-Florida residents were diagnosed with malaria while traveling in Florida.

Disease Facts

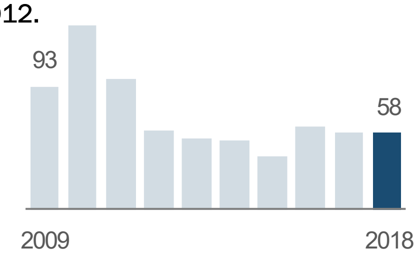
Caused by *Plasmodium falciparum, P. malariae, P. ovale, P. vivax* parasites

Illness can be uncomplicated or severe; common symptoms include high fever with chills, rigor, sweats, headache, nausea and vomiting

Transmitted via bite of infective mosquito; rarely by blood transfusion or organ transplant

Under surveillance to identify individual cases and implement control measures to prevent introduction and active transmission, monitor incidence over time, estimate burden of illness

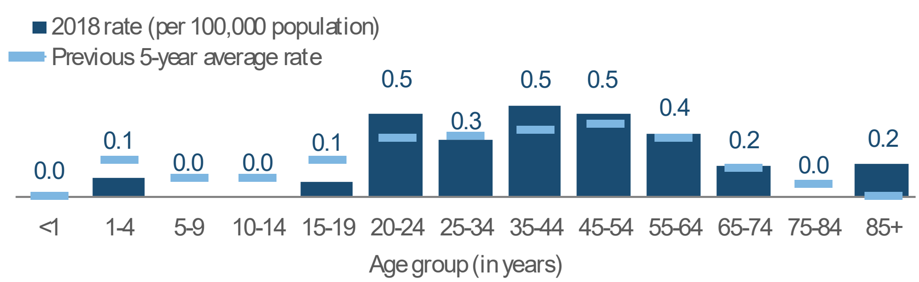
The number of reported malaria cases has remained relatively consistent since 2012.



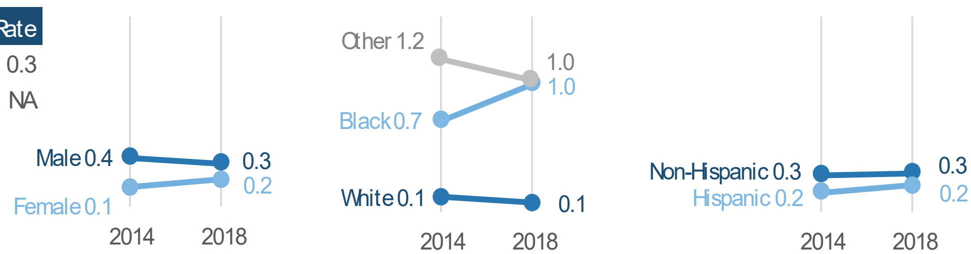
Disease Trends

Summary			
Number of cases			58
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+3.7%
Age (in Years)			
Mean			44
Median			44
Min-max			4 - 89
Gender	**Number**	**(Percent)**	**Rate**
Female	23	(39.7)	0.2
Male	35	(60.3)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	11	(19.0)	NA
Black	35	(60.3)	1.0
Other	12	(20.7)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	47	(81.0)	0.3
Hispanic	11	(19.0)	NA
Unknown ethnicity	0		

The malaria rate (per 100,000 population) varies by age. Historically, rates are highest in adults 20 to 64 years old. In 2018, rates were highest in adults 20 to 24, 35 to 44 and 45 to 54 years old. Children <5 years old are one of the most vulnerable groups affected by malaria and are at higher risk for severe disease and death. In 2018, the single case in a child 1 to 4 years old was infected with *P. falciparum* while visiting family in Togo.



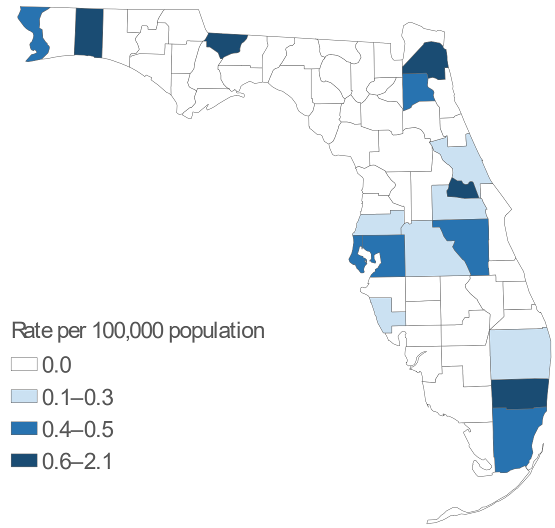
The malaria rate (per 100,000 population) was similar in males, females, Hispanics and non-Hispanics in 2018. By race, the rate was low in whites and similar in blacks and other races in 2018.



Malaria

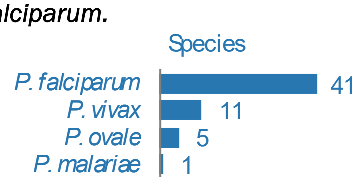
Summary	Number
Number of cases	58
Outcome	**Number (Percent)**
Hospitalized	47 (81.0)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	1 (1.7)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	57 (98.3)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	54 (93.1)
Outbreak-associated	4 (6.9)
Outbreak status unknown	0

Malaria cases were identified in residents of 17 counties across Florida in 2018. Cases were most commonly reported in Broward (13) and Miami-Dade (11) counties.



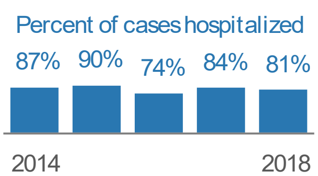
Rates are by county of residence, regardless of where infection was acquired (58 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

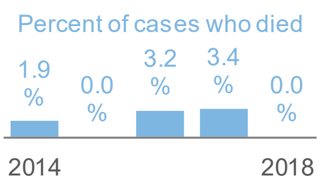
In 2018, the majority (71%) of infections were caused by *P. falciparum.*



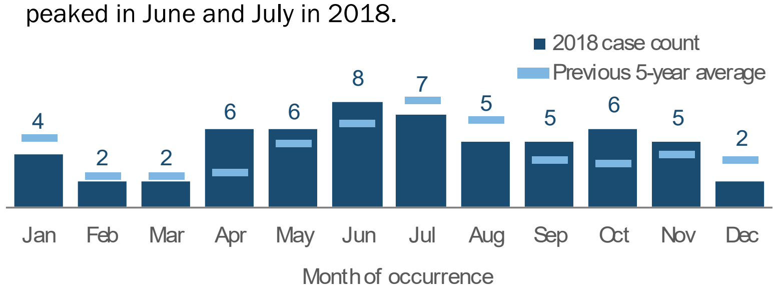
More Disease

The majority of malaria cases are hospitalized; deaths do occur. No deaths were reported in 2018.

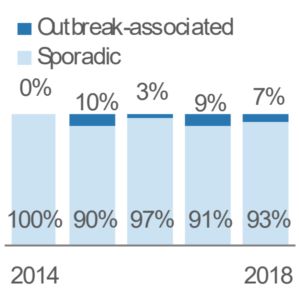




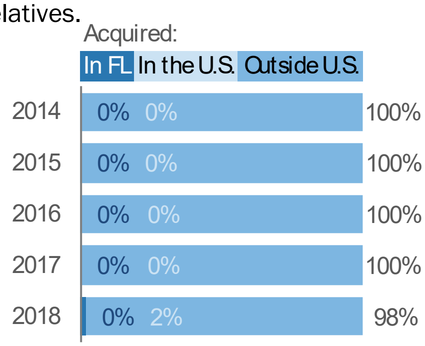
Malaria cases are imported into Florida year-round, but activity peaked in June and July in 2018.

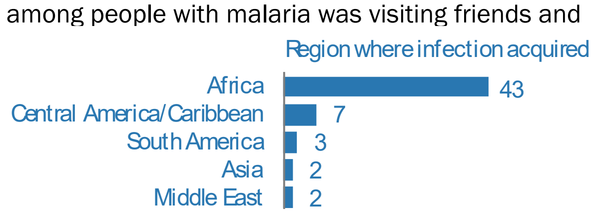


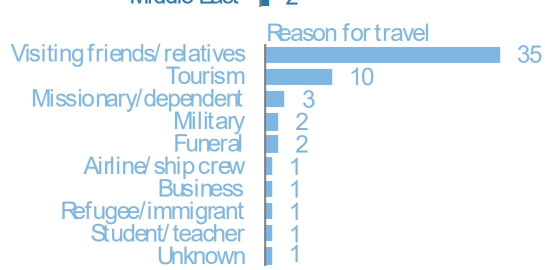
One family cluster was identified in 2018. Both cases traveled to Nigeria to visit family.



In 2018, one case was locally acquired through a bone marrow transplant. The remaining cases were all acquired outside the U.S. Africa remained the most common region where people were infected. The most common reason for travel among people with malaria was visiting friends and relatives.







See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Mercury Poisoning

Key Points

In August 2008, the case definition was updated to require clinically compatible illness, leading to a decrease in cases in subsequent years. The number of cases increased dramatically in 2017, with more cases than any year since the 2008 case definition change, and remained elevated in 2018. This increase in cases is not well understood.

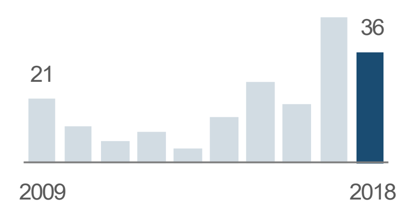
Forms of mercury most likely encountered by the general public include elemental mercury vapor (found in some thermometers and dental amalgam), methylmercury (associated with fish consumption), ethylmercury (found in some medical preservatives) and inorganic mercury (mercuric salts). Eating fish is healthy and can reduce the risk of heart attack and stroke, but eating too much of certain fish can increase exposure to mercury.

Developing fetuses and young children are more sensitive to the effects of mercury, which can impact brain development. The U.S. Food and Drug Administration and the U.S. Environmental Protection Agency recommend that women of childbearing age and young children should eat fish with low mercury levels. The Department guidelines for fish consumption are available at FloridaHealth.gov/FloridaFishAdvice.

Disease Facts

- **Caused** by mercury (elemental or metallic mercury, organic mercury compounds, inorganic mercury compounds)
- **Illness** includes impaired neurological development, impaired peripheral vision; disturbed sensations (e.g., "pins and needles feelings"), lack of coordinated movements, muscle weakness, or impaired speech, hearing and walking
- **Exposure** is through ingestion of mercury or inhalation of mercury vapors
- **Under surveillance** to identify and mitigate persistent sources of exposure, prevent further or continued exposure through remediation or elimination of sources when possible, identify populations at risk

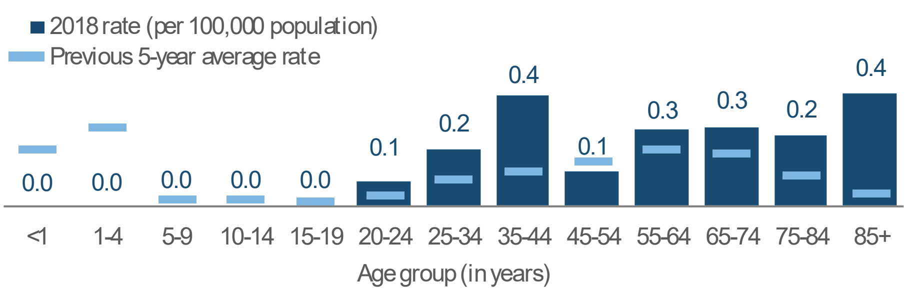
Mercury poisoning increased dramatically in 2017 and remained elevated in 2018.



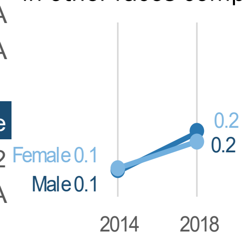
Disease Trends

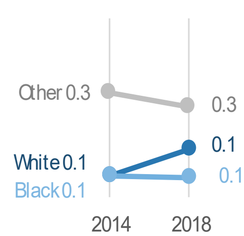
Summary			
Number of cases			36
Rate (per 100,000 population)			0.2
Change from 5-year average rate			+54.5%
Age (in Years)			
Mean			54
Median			54
Min-max			24 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	17	(47.2)	NA
Male	19	(52.8)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	22	(81.5)	0.1
Black	2	(7.4)	NA
Other	3	(11.1)	NA
Unknown race	9		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	24	(92.3)	0.2
Hispanic	2	(7.7)	NA
Unknown ethnicity	10		

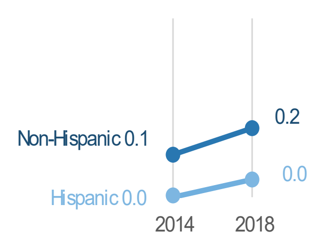
The mercury poisoning rate (per 100,000 population) has historically been highest in children 1 to 4 years old and adults 45 to 75 years old. In 2018, rates were higher in adults; particularly adults 35 to 64 years old and ≥85 years old.



The mercury poisoning rate (per 100,000 population) has remained relatively stable in all demographics over the past five years. While rates increased slightly in both gender groups and non-Hispanics in 2018, the rate continues to be higher in other races compared to whites and blacks.





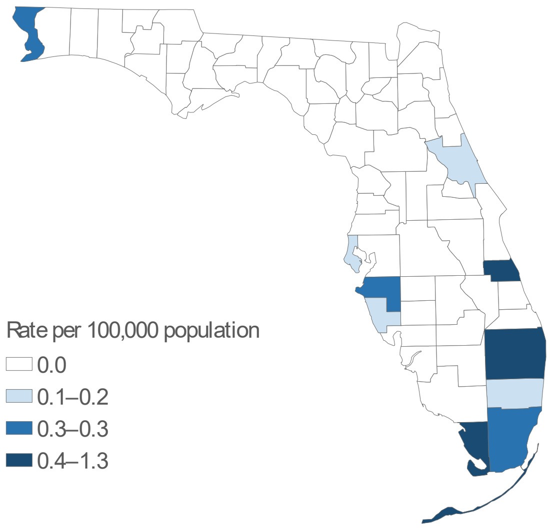


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Mercury poisoning cases were missing 6.7% of ethnicity data in 2014, 6.7% of race data in 2014, 27.8% of ethnicity data in 2018 and 25.0% of race data in 2018.

Mercury Poisoning

Summary	Number
Number of cases	36
Case Classification	**Number (Percent)**
Confirmed	36 (100.0)
Probable	0 (0.0)
Outcome	**Number (Percent)**
Hospitalized	0 (0.0)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	34 (100.0)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	0 (0.0)
Exposed location unknown	2
Outbreak Status	**Number (Percent)**
Sporadic	36 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0
Type of Exposure	**Number (Percent)**
Fish consumption	30 (83.3)
Dental amalgam	1 (2.8)
Unknown	5 (13.9)

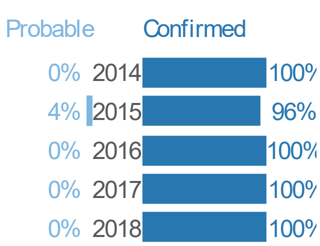
Mercury poisoning occurred primarily in southeast Florida in 2018. More than 65% of cases were reported in Palm Beach (18 cases) and Miami-Dade (7 cases) counties.



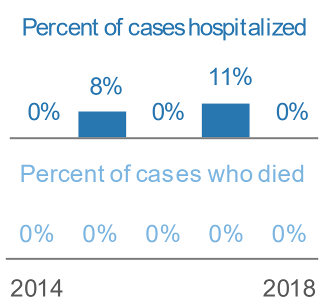
Rates are by county of residence for cases exposed in Florida (34 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

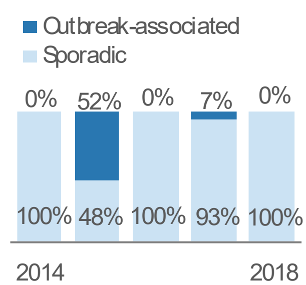
Almost all mercury poisoning cases are laboratory confirmed.



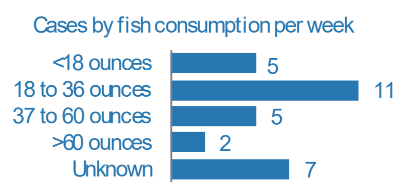
No mercury poisoning cases were hospitalized in 2018; no deaths have been identified in recent years.



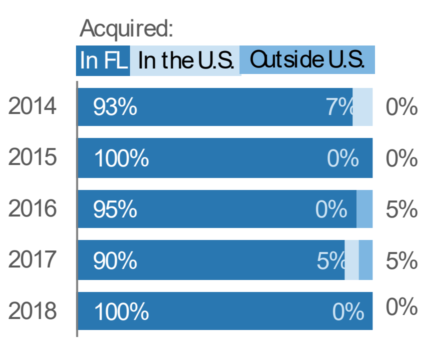
No outbreak-associated cases were identified in 2018.



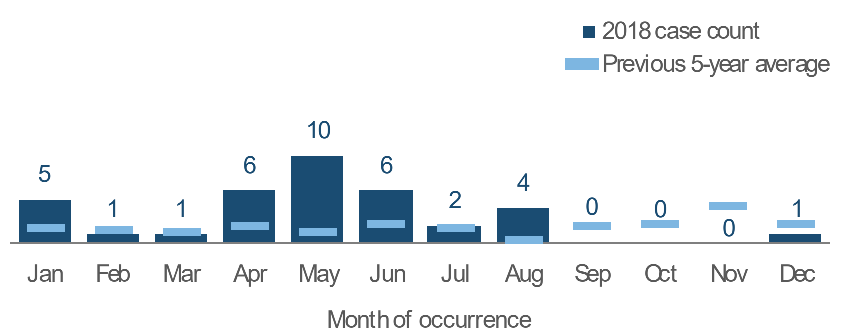
Mercury poisoning is mostly caused by fish consumption. The amount of fish consumed per week varies.



Most people with mercury poisoning are exposed in Florida.



Mercury poisoning occurs throughout the year, with little obvious seasonality in Florida, though 61% of cases occurred in April, May and June in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Mumps

Key Points

Despite routine vaccination, mumps has been increasing in the U.S., mainly due to outbreaks in young adults in settings with close contact, like college campuses. Nationally, 2,515 mumps cases were reported in 2018, with over half in people 15 to 39 years old. Well over one-third of the cases were reported from the Pacific and Middle Atlantic regions of the country, with several college outbreaks driving the increased incidence in those states. Waning immunity is thought to play a role in these outbreaks.

Mumps incidence in Florida increased dramatically in 2017 and remained elevated in 2018. The elevated incidence over these two years was partly due to efforts by state and county health department staff to maintain awareness of mumps disease in the medical community by educating providers on reporting guidance and appropriate testing. In 2017 and 2018, staff also increased surveillance efforts to obtain specimens for testing at the state public health laboratory for both sporadic and outbreak-associated cases.

Disease Facts

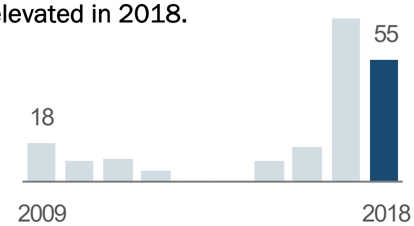
Caused by mumps virus

Illness includes fever, headache, muscle aches, tiredness and loss of appetite, followed by swelling of salivary glands

Transmitted person to person via droplets of saliva or mucus from the mouth, nose or throat of an infected person, usually when they cough, sneeze or talk

Under surveillance to prevent further transmission through isolation and vaccination of contacts, identify and control outbreaks, monitor effectiveness of immunization programs and vaccines

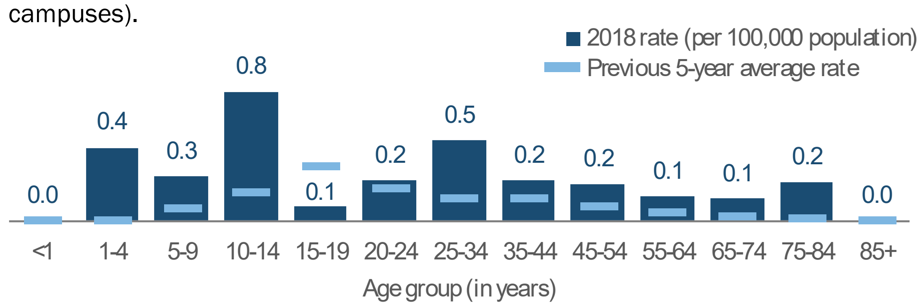
Mumps incidence increased dramatically in 2017 and remained elevated in 2018.



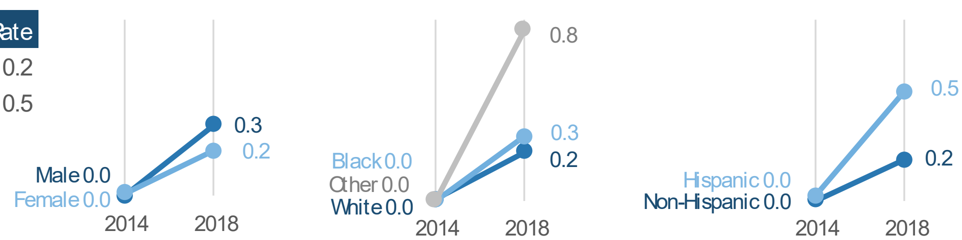
Disease Trends

Summary			
Number of cases			55
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+162.6%
Age (in Years)			
Mean			33
Median			30
Min-max			2 - 82
Gender	**Number**	**(Percent)**	**Rate**
Female	22	(40.0)	0.2
Male	33	(60.0)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	35	(64.8)	0.2
Black	10	(18.5)	NA
Other	9	(16.7)	NA
Unknown race	1		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	28	(51.9)	0.2
Hispanic	26	(48.1)	0.5
Unknown ethnicity	1		

In 2018, the mumps rate (per 100,000 population) was highest in children 10 to 14 years old followed by adults 25 to 34 years old. This may be due to waning immunity from vaccine and time spent in close contact settings (e.g., school campuses).



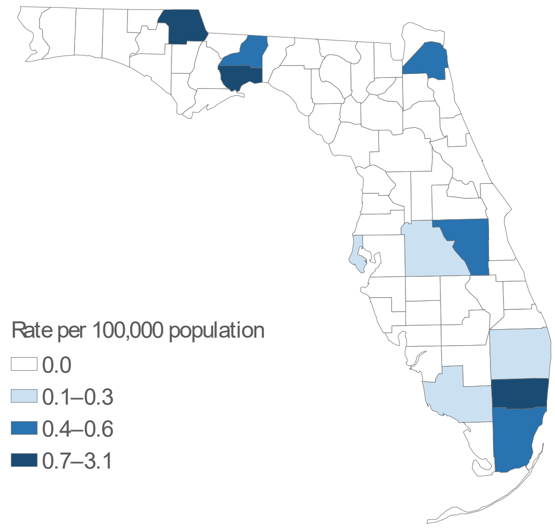
Mumps rates (per 100,000 population) have increased across all gender, race and ethnicity groups from 2014 to 2018, though the increase was disproportionately larger among other races and Hispanics.



Mumps

Summary	Number
Number of cases	55
Case Classification	**Number (Percent)**
Confirmed	23 (41.8)
Probable	32 (58.2)
Outcome	**Number (Percent)**
Hospitalized	8 (14.5)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	41 (85.4)
Acquired in the U.S., not Florida	2 (4.2)
Acquired outside the U.S.	5 (10.4)
Acquired location unknown	7
Outbreak Status	**Number (Percent)**
Sporadic	37 (67.3)
Outbreak-associated	18 (32.7)
Outbreak status unknown	0

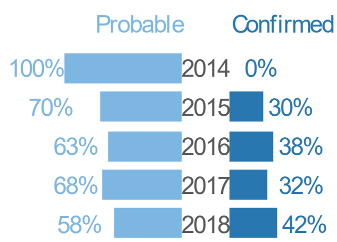
In 2018, most mumps cases were acquired in Florida. Cases occurred in residents of 11 counties, with the highest rates (per 100,000 population) in Wakulla, Jackson and Broward counties.



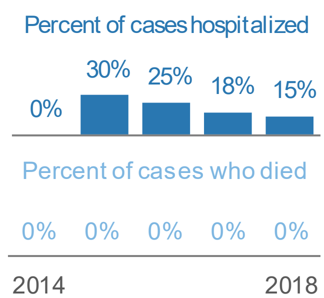
Rates are by county of residence for infections acquired in Florida (41 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

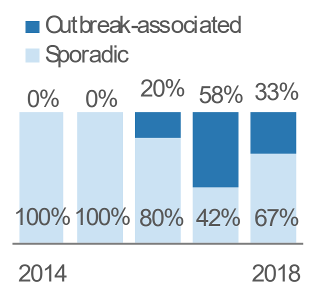
Generally between 30% and 45% of cases are confirmed each year (only one case was reported in 2014).



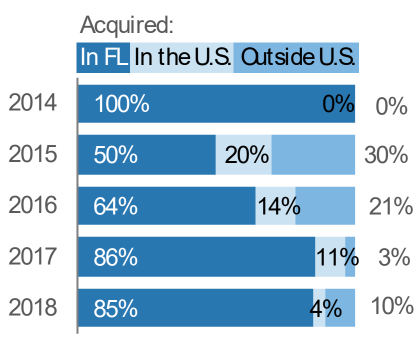
Some mumps cases are hospitalized. No deaths have been identified in recent years.



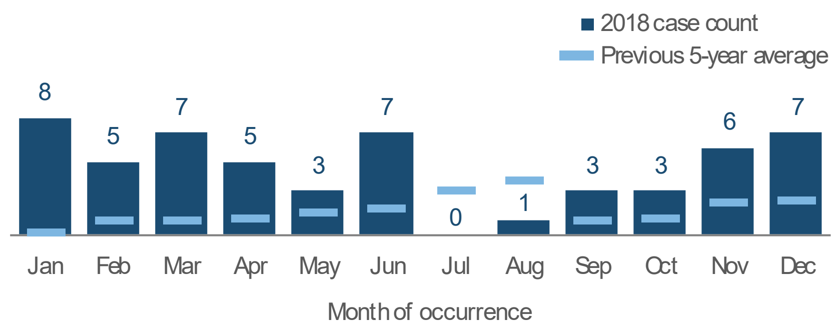
More outbreaks were identified in 2017 and 2018 than in the previous three years due to enhanced surveillance efforts.



Most mumps infections were acquired in Florida in 2018; seven infections were imported from other states and countries.



Mumps cases occurred throughout the year in Florida in 2018. More cases were reported in January, March, June and December.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Pertussis

Key Points

Nationally, the number of pertussis cases reported increased starting in the 1980s, peaked in 2012, and has gradually decreased since. Pertussis is cyclical in nature with peaks in disease every three to five years. In Florida, pertussis cases last peaked in 2013. Pertussis incidence in 2018 remained consistent with that seen during non-peak years.

Older adults often have milder infections and serve as the reservoirs and sources of infection for infants and young children. Infants have the greatest burden of pertussis infections, both in number of cases and severity. Infants <2 months old are too young to be vaccinated, underscoring the importance of vaccinating pregnant women and family members of infants to protect infants from infection. The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices recommends that all pregnant women should receive a dose of Tdap (tetanus, diphtheria, pertussis) vaccine during the third trimester of each pregnancy to help protect their babies. In addition, all children and adults who plan to have close contact with infants should receive a dose of Tdap if they have not previously received one.
There were 11 pertussis outbreaks reported in 2018. The majority (64%) of outbreaks occurred in school and daycare settings, with the largest involving 10 cases.

Disease Facts

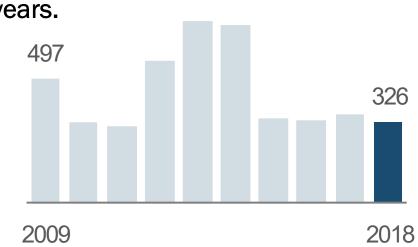
Caused by *Bordetella pertussis* bacteria

Illness includes runny nose, low-grade fever, mild cough and apnea that progresses to paroxysmal cough, or "whoop," with posttussive vomiting and exhaustion

Transmitted person to person via inhalation of infective aerosolized respiratory tract droplets

Under surveillance to identify cases for treatment to prevent death, identify and prevent outbreaks, limit transmission in settings with infants or others who may transmit to infants, monitor effectiveness of immunization programs and vaccines

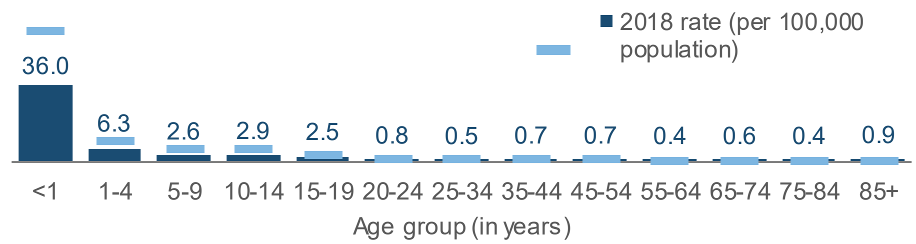
Pertussis incidence in 2018 was consistent with incidence in non-peak years.



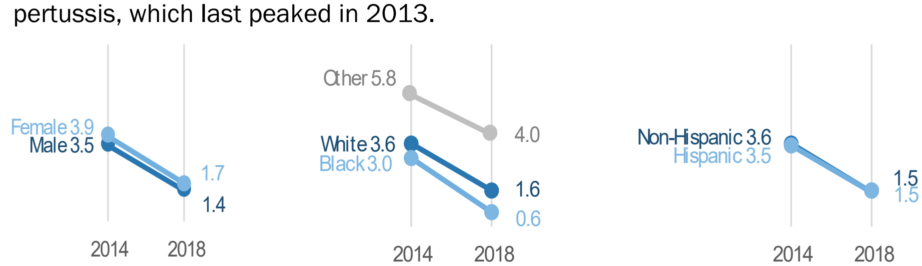
Disease Trends

Summary			
Number of cases			326
Rate (per 100,000 population)			1.6
Change from 5-year average rate			-38.1%
Age (in Years)			
Mean			18
Median			9
Min-max			0 - 93
Gender	**Number**	**(Percent)**	**Rate**
Female	181	(55.5)	1.7
Male	145	(44.5)	1.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	254	(78.6)	1.6
Black	21	(6.5)	0.6
Other	48	(14.9)	4.0
Unknown race	3		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	236	(74.2)	1.5
Hispanic	82	(25.8)	1.5
Unknown ethnicity	8		

The pertussis rate (per 100,000 population) is highest in infants <1 year old.



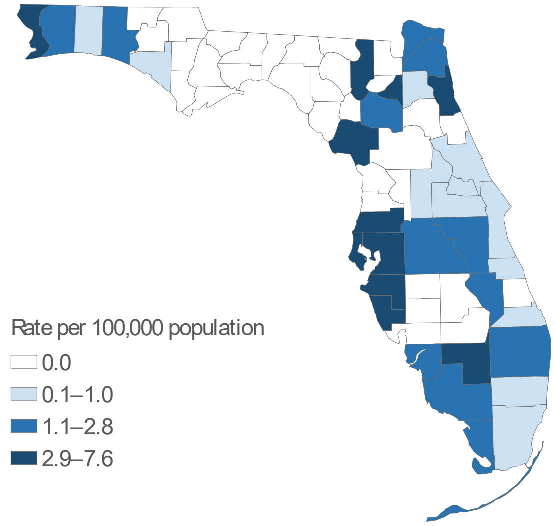
Pertussis rates (per 100,000 population) have decreased in all gender, race and ethnicity groups since 2014. This is expected given the cyclical nature of pertussis, which last peaked in 2013.



Pertussis

Summary	Number
Number of cases	326
Case Classification	**Number (Percent)**
Confirmed	220 (67.5)
Probable	106 (32.5)
Outcome	**Number (Percent)**
Hospitalized	75 (23.0)
Died	1 (0.3)
Imported Status	**Number (Percent)**
Acquired in Florida	313 (98.4)
Acquired in the U.S., not Florida	5 (1.6)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	8
Outbreak Status	**Number (Percent)**
Sporadic	199 (61.4)
Outbreak-associated	125 (38.6)
Outbreak status unknown	2

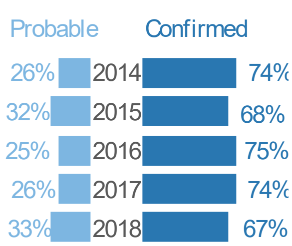
In 2018, pertussis cases primarily occurred in the more populated areas of the state in south and central Florida, as well as the western Panhandle and the northeastern corner of the state. Several of the counties with the highest rates reported pertussis outbreaks.



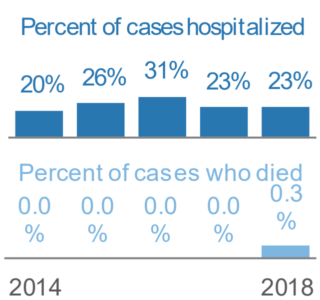
Rates are by county of residence for infections acquired in Florida (313 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

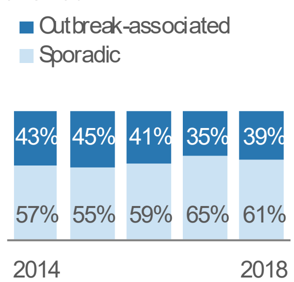
About 2/3 of pertussis cases are confirmed. Probable cases are clinically compatible but lack confirmatory testing.



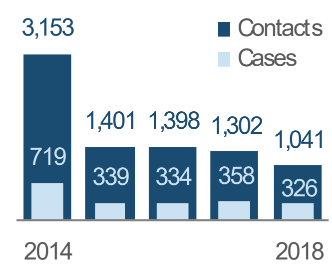
Between 20% to 31% of pertussis cases are hospitalized. Deaths from pertussis are rare.



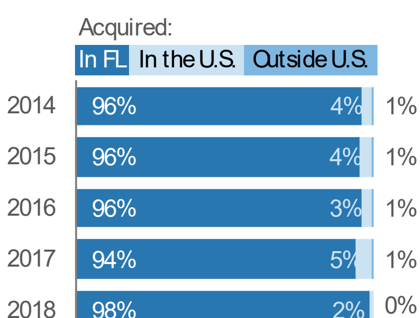
The percentage of cases that were outbreak-associated increased slightly in 2018. Eleven outbreaks were identified.



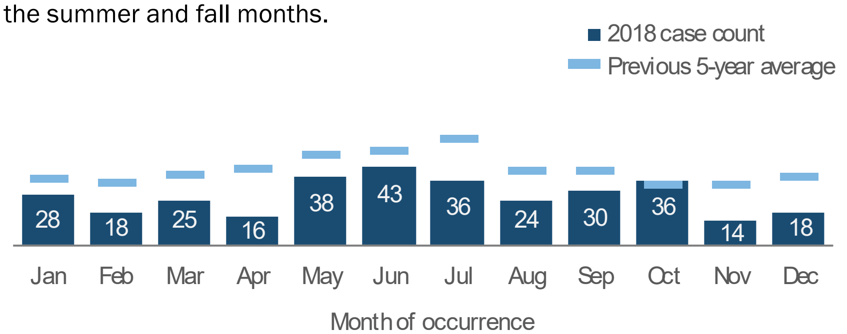
For each pertussis case, an average of three exposed contacts are recommended antibiotics to prevent illness.



Most pertussis cases are acquired in Florida; a small number of cases are imported from other states and countries.



Pertussis cases did not have a distinct seasonality in 2018. In general, pertussis does not have a seasonal pattern, although cases may increase in the summer and fall months.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Pesticide-Related Illness and Injury, Acute

Key Points

Pesticides are used in agricultural, residential, recreational and other various settings throughout the state. Exposures resulting in illness or injury can occur from pesticide drift, consumption of contaminated food or water, or improper use, storage or application of household pesticides such as insect repellents, foggers, rodent poisons, weed killers and mosquito, flea and tick control products.

Prior to January 2012, suspect sporadic cases (i.e., not part of a cluster) and suspect cases associated with non-occupational exposures (typically limited household exposures) met the surveillance case definition. The case definition was changed in January 2012 to exclude these cases, substantially decreasing the number of cases reported. Incidence since 2012 has remained relatively stable with a slight decrease in 2016.

In 2018, most cases (56%) had a low severity of illness and 36% had moderate severity of illness. One case had severe illness and three deaths were reported. Of the 32 outbreak-associated cases in 2018, 53% were related to four major in-state outbreaks. Two outbreaks were associated with structural fumigation (Miami-Dade County: four cases; Pinellas County: three cases), one was associated with an apartment sprayed for cockroaches (Palm Beach County: four cases), and one was related to hypocoagulopathy associated with synthetic cannabinoids use (Hillsborough County: six cases).

Disease Facts

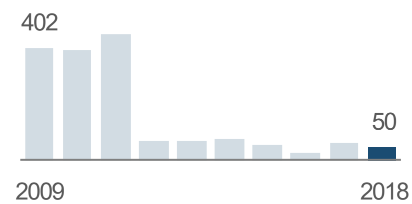
Caused by pesticides

Illness can be respiratory, gastrointestinal, neurological, dermal, etc., depending on the agent

Exposure depends on several factors (e.g., agent, application method, environmental conditions); dermal, inhalation and ingestion are most common routes of exposure

Under surveillance to identify and mitigate persistent sources of exposure, identify populations at risk, evaluate trends in environmental conditions and occupational exposure, improve administration and proper use of pesticides to reduce exposure

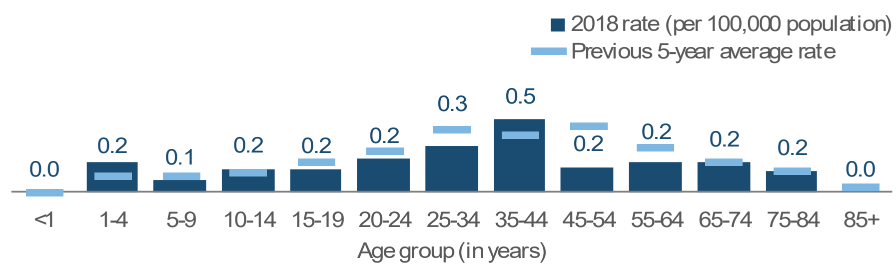
Pesticide-related case incidence has remained relatively stable since the 2012 case definition change.



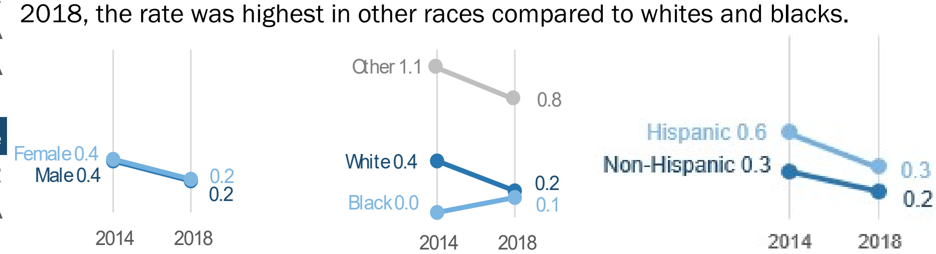
Disease Trends

Summary			
Number of cases			50
Rate (per 100,000 population)			0.2
Change from 5-year average rate			-18.9%
Age (in Years)			
Mean			40
Median			37
Min-max			3 - 79
Gender	**Number**	**(Percent)**	**Rate**
Female	26	(52.0)	0.2
Male	24	(48.0)	0.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	30	(66.7)	0.2
Black	5	(11.1)	NA
Other	10	(22.2)	NA
Unknown race	5		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	27	(60.0)	0.2
Hispanic	18	(40.0)	NA
Unknown ethnicity	5		

In 2018, the rate (per 100,000 population) of acute pesticide-related illness and injury was highest in people 35 to 44 years old and 25 to 34 years old.



Since 2014, rates (per 100,000 population) of acute pesticide-related illness and injury have decreased slightly in all demographics, except in blacks where it increased slightly. While rates were similar by gender and ethnicity groups in 2018, the rate was highest in other races compared to whites and blacks.

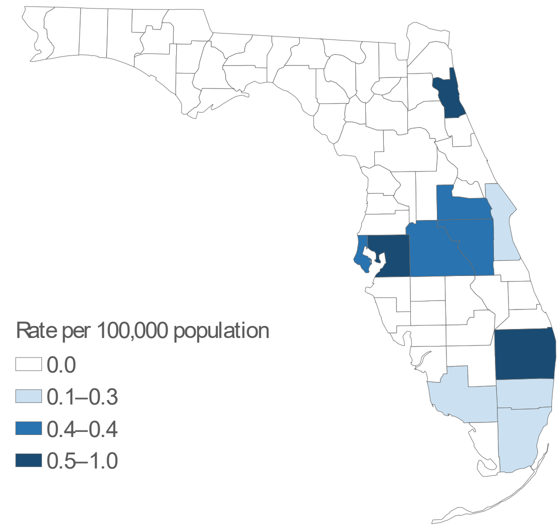


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute pesticide-related illness and injury cases were missing 10.0% of ethnicity data in 2018 and 10.0% of race data in 2018.

Pesticide-Related Illness and Injury, Acute

Summary	Number
Number of cases	50
Case Classification	**Number (Percent)**
Confirmed	14 (28.0)
Probable	11 (22.0)
Suspect	25 (67.2)
Outcome	**Number (Percent)**
Hospitalized	8 (16.0)
Died	3 (6.0)
Imported Status	**Number (Percent)**
Exposed in Florida	49 (100.0)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	0 (0.0)
Exposed location unknown	1
Outbreak Status	**Number (Percent)**
Sporadic	18 (36.0)
Outbreak-associated	32 (64.0)
Outbreak status unknown	0

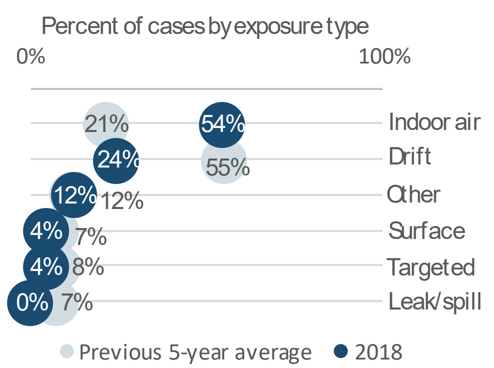
Acute pesticide-related illness and injuries occurred in residents of 13 Florida counties in 2018. Just over half of all cases occurred in Palm Beach (14 cases) and Hillsborough (12 cases) counties.



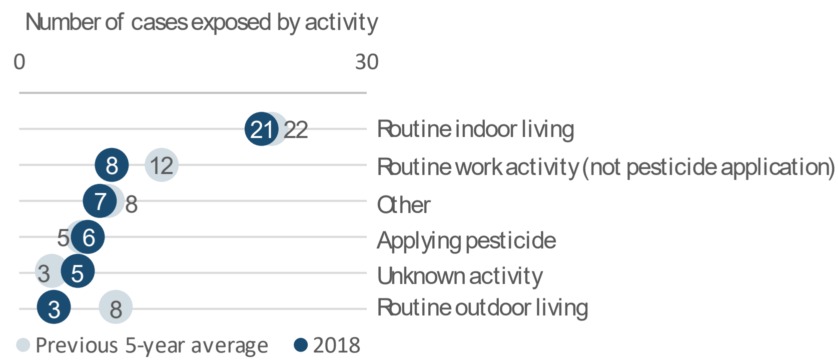
Rates are by county of residence, regardless of where exposure occurred (50 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

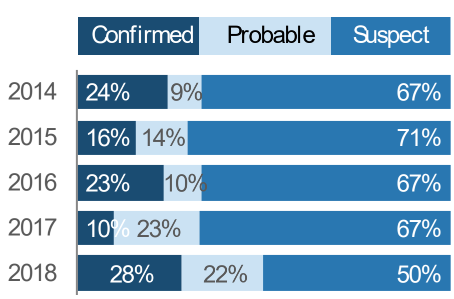
Indoor air was the most common exposure type and was above the previous five-year average in 2018. Note: cases can report >1 exposure type.



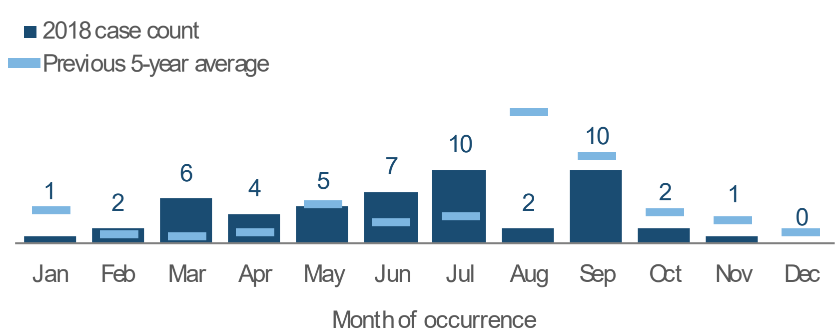
In 2018, 22 cases (44%) were exposed to pesticide while doing routine indoor activities, unrelated to pesticide application work. This is consistent with the previous 5-year average.



From 2014 to 2018, between 50% and 71% of cases were suspect each year. Less than 1/3 were confirmed in 2018.



Acute pesticide-related illness and injuries peak in late summer in July and September. Pesticide application also increases in the summer.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Rabies, Animal and Possible Exposure

Key Points for Humans

The first case of human rabies acquired in Florida since 1948 was reported in 2017; exposure was attributed to a bite from a rabid bat. In 2018, another human rabies case was reported in a 6-year-old male from Lake County. The child developed a fatal rabies infection after being bitten by a sick bat found near the family's home about two weeks prior to symptom onset. No medical attention was sought at the time of the bite. The rabies virus strain involved was associated with *Tadarida brasiliensis* (Brazilian free-tailed) bats.

The animals most frequently diagnosed with rabies in Florida are raccoons, bats, unvaccinated cats and foxes. Rabies is endemic in the raccoon and bat populations of Florida. Rabies frequently spreads from raccoons, and occasionally bats, to other animal species such as foxes and cats.

Incidence of human exposures to suspected rabid animals for which PEP is recommended has increased since case reporting was initiated, primarily due to PEP recommendations related to dog bites. Contributing factors may include more animal bites, lack of rabies PEP training and fewer local resources to find and confine or test biting animals. In addition, much of the Florida Panhandle was severely impacted by Hurricane Michael in 2018, which likely contributed to increased rates of rabies PEP recommended in that region. Case counts and rates from this report may differ from those found in other rabies reports as different criteria are used to assemble the data.

Disease Facts

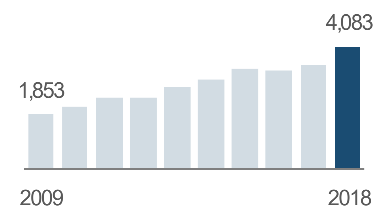
Caused by rabies virus

Illness in humans includes fever, headache, insomnia, confusion, hallucinations, increase in saliva, difficulty swallowing and fear of water; near 100% fatality rate; death usually occurs within days of symptom onset

Transmitted when infectious saliva or nervous tissue comes in contact with open wound or mucous membrane via bite

Under surveillance to identify and mitigate sources of exposure, evaluate adherence to guidance on rabies post-exposure prophylaxis (PEP)

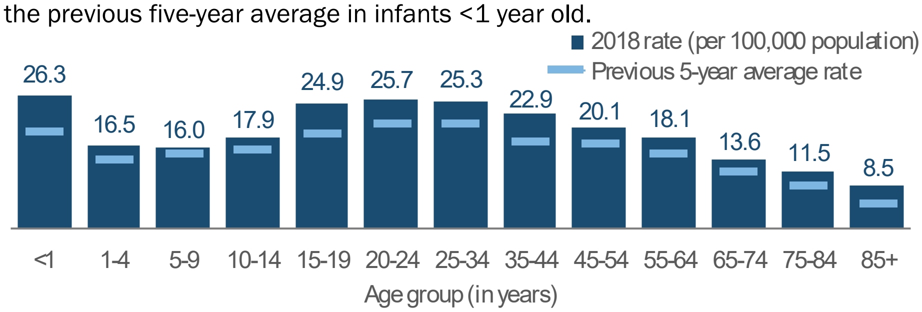
Possible human exposures to rabies increased notably in 2018.



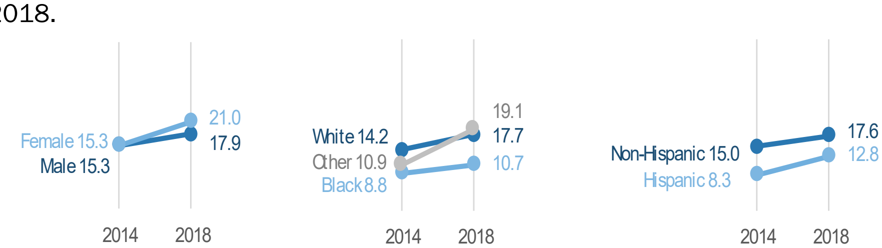
Human Trends

Summary			
Number of cases			4,083
Rate (per 100,000 population)			19.5
Change from 5-year average rate			+22.5%
Age (in Years)			
Mean			38
Median			36
Min-max			0 - 100
Gender	**Number**	**(Percent)**	**Rate**
Female	2,245	(55.0)	21.0
Male	1,838	(45.0)	17.9
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	2,864	(82.5)	17.7
Black	380	(10.9)	10.7
Other	227	(6.5)	19.1
Unknown race	612		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	2,732	(79.9)	17.6
Hispanic	688	(20.1)	12.8
Unknown ethnicity	663		

Human exposures to suspected rabid animals for which PEP is recommended occurs in all age groups, but the rate (per 100,000 population) tends to be highest in people 15 to 34 years old. The rate in 2018 was notably higher than the previous five-year average in infants <1 year old.



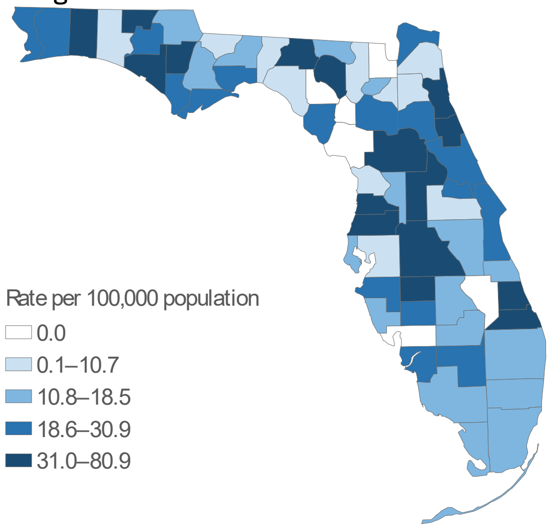
The rate (per 100,000 population) of human exposures to suspected rabid animals for which PEP is recommended is highest in females, other races, whites and non-Hispanics in 2018. The rate increased in all demographics from 2014 to 2018.



Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Possible human exposure to rabies cases w ere missing 12.2% of ethnicity data in 2014, 14.2% of race data in 2014, 16.2% of ethnicity data in 2018 and 15.0% of race data in 2018.

Rabies, Animal and Possible Exposure

Human exposures to suspected rabid animals for which PEP is recommended occur throughout the state. The rate (per 100,000 population) was high in both rural and urban counties in 2018.



Rates are by county of residence for cases exposed in Florida (3,952 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

In 2018, rabies PEP was most frequently recommended for exposures to dogs (55%), cats (24%), raccoons (9%) and bats (8%). Poor response from dog bite victims to ensure proper follow-up with the biting dog has been identified as a challenge in some counties. Bat-related PEP was somewhat increased in 2018, which may reflect heightened public awareness following two bat rabies-related deaths since 2017 and increased collaborative reporting between wildlife professionals and public health officials.

In coordination with the Centers for Disease Control and Prevention, an international notification system was used to successfully identify two Swiss travelers to Florida who rescued a rabid bat in Collier County. Both travelers subsequently received PEP. For more information, see *Morbidity and Mortality Weekly Report*, January 2018 at cdc.gov/mmwr/volumes/67/wr/mm6716a5.htm.

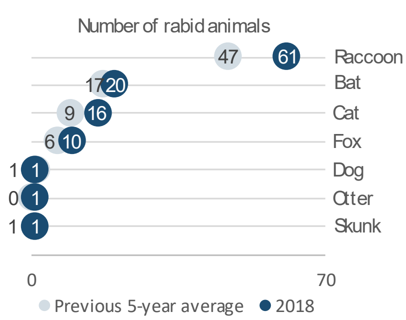
Animal Trends

Key Points for Animals

Laboratory testing for animal rabies is only done when animals potentially expose (e.g., bite) humans or domestic (owned) animals; thus, these data do not necessarily correlate with the true prevalence of rabies by animal species in Florida. A total of 110 laboratory-confirmed rabid animals were reported in 2018.

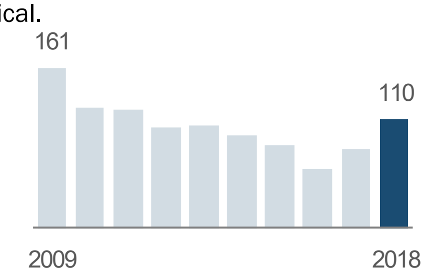
There is generally a much greater risk for rabies exposure to people when domestic animals are infected versus wildlife. Properly administered rabies vaccines are highly effective in protecting domestic animals like cats, dogs and ferrets against rabies infection, and rabies vaccination is required for these animals per section 828.30, *Florida Statues*.

In 2018, raccoons remained the most commonly identified rabid animal, followed by bats, cats and foxes.

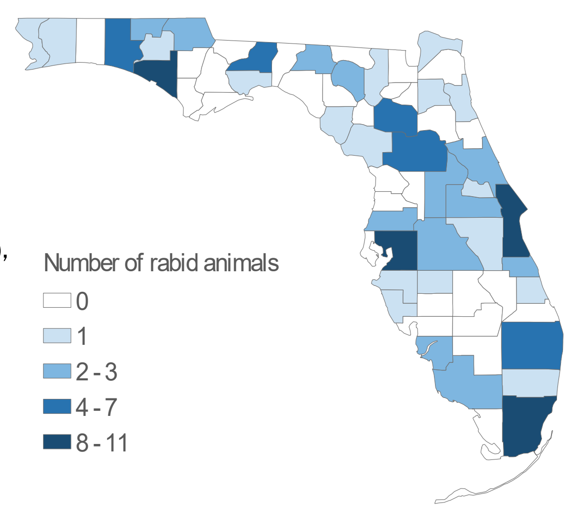


In 2018, Hillsborough County reported an unusual number of rabid cats (six), the most seen in a single county in one year. A rabies sequencing study was initiated with CDC to determine whether a cat-specific rabies virus had emerged. Although the study is ongoing, it appears more likely that the unusual activity was due to a high number of outside unvaccinated cats. In addition, Miami-Dade County elected to initiate a raccoon rabies oral rabies vaccine (ORV) program following a substantial increase in rabid animals in 2018 (eight raccoons, two cats, one otter).

The number of rabid animals identified has generally decreased over the past decade, but has increased since 2017. Rabies activity is cyclical.



Rabid animals were identified throughout the state in 2018.



Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis

Key Points

Spotted fever rickettsioses (SFRs) are a group of tick-borne diseases caused by closely related *Rickettsia* bacteria. The most serious and commonly reported spotted fever group rickettsiosis in the U.S. is Rocky Mountain spotted fever (RMSF) caused by *R. rickettsii*. Other causes of SFR include *R. parkeri*, *R. africae* and *R. conorii*. The principal tick vectors in Florida are the American dog tick (*Dermacentor variabilis*) and the Gulf Coast tick (*Amblyomma maculatum*).

Human antibodies to spotted fever rickettsial species such as *R. parkeri*, *R. amblyommii*, *R. africae* and *R. conorii* cross-react with serologic tests for the RMSF organism *R. rickettsii*. Commercial antibody testing to differentiate other SFRs from RMSF is currently limited, though PCR testing of eschar swabs performed at reference laboratories can provide species. More than 95% of cases in 2018 were probable because eschar swabs or convalescent serology samples were either not available or not obtained. One case became ill during travel to South Africa, developing an eschar at the site of a tick bite. After returning home, their convalescent RMSF/SRF serology test was positive.

Case counts and rates from this report may differ from those found in other vector-borne disease reports as different criteria are used to assemble the data. One RMSF and SFR case reported in 2018 had symptom onset in 2017.

Disease Facts

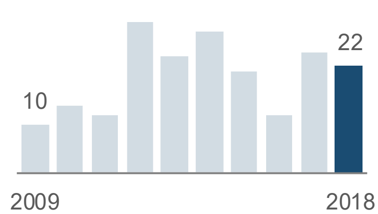
Caused by certain *Rickettsia* bacteria; most commonly *Rickettsia rickettsii*, *R. parkeri*, *R. africae*, *R. conorii*

Illness includes fever, headache, abdominal pain, vomiting and muscle pain; rash develops in 80% of cases

Transmitted via bite of infective tick

Under surveillance to monitor incidence over time, estimate burden of illness, monitor geographical and temporal occurrence, target areas of high incidence for prevention education

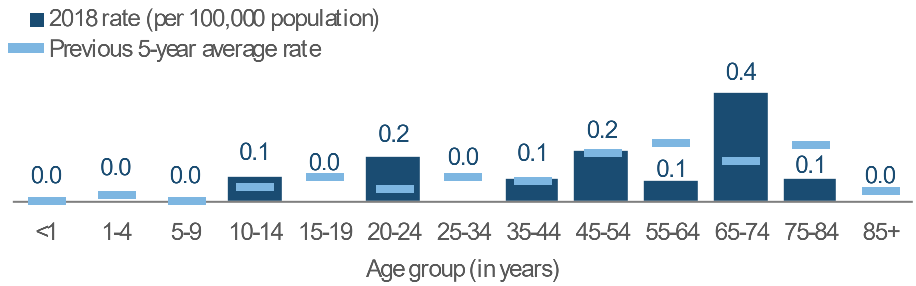
RMSF and SFR incidence varies by year.



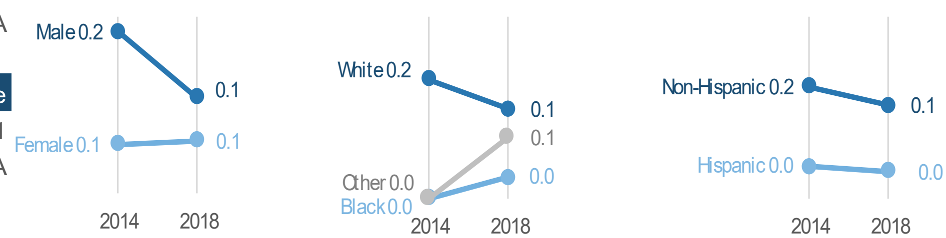
Disease Trends

Summary			
Number of cases			22
Rate (per 100,000 population)			0.1
Change from 5-year average rate			-6.1%
Age (in Years)			
Mean			55
Median			60
Min-max			11 - 78
Gender	**Number**	**(Percent)**	**Rate**
Female	8	(36.4)	NA
Male	14	(63.6)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	20	(90.9)	0.1
Black	1	(4.5)	NA
Other	1	(4.5)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	20	(90.9)	0.1
Hispanic	2	(9.1)	NA
Unknown ethnicity	0		

RMSF and SFR rates (per 100,000 population) are highest in adults, particularly between 45 and 84 years old. In 2018, the rate was highest in adults 65 to 74 years old.



RMSF and SFR rates (per 100,000 population) remained relatively stable from 2014 to 2018. Rates are generally slightly higher in males, whites and non-Hispanics, though rates were similar by gender and for whites and other races in 2018.

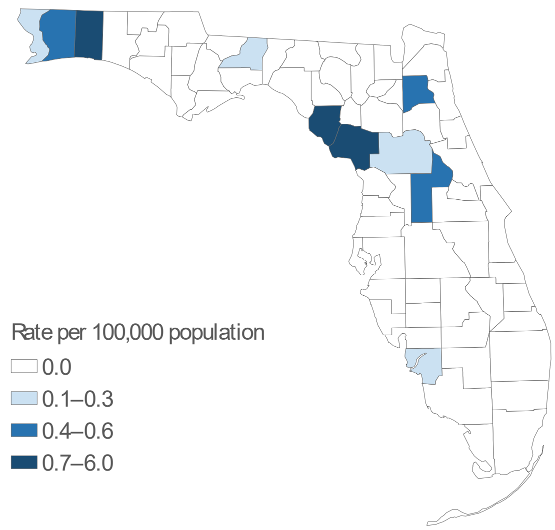


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Rocky Mountain spotted fever and spotted fever rickettsiosis cases were missing 13.8% of ethnicity data in 2014 and 13.8% of race data in 2014.

Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis

Summary	Number
Number of cases	22
Case Classification	**Number (Percent)**
Confirmed	1 (4.5)
Probable	21 (95.5)
Outcome	**Number (Percent)**
Hospitalized	9 (40.9)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	12 (57.1)
Acquired in the U.S., not Florida	8 (38.1)
Acquired outside the U.S.	1 (4.8)
Acquired location unknown	1
Outbreak Status	**Number (Percent)**
Sporadic	22 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

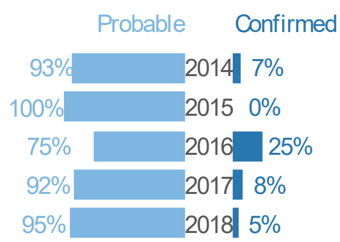
Most *Rickettsia* infections acquired within Florida are in residents of northern and central counties. Two cases each were reported in Okaloosa and Lake counties in 2018. The remaining eight counties each had one case reported.



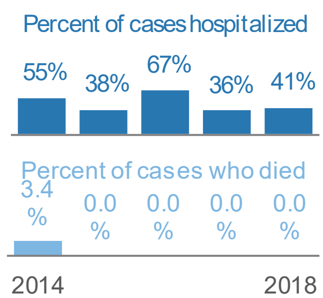
Rates are by county of residence for infections acquired in Florida (12 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

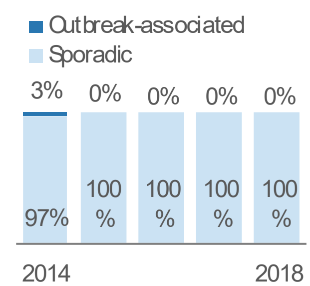
Most RMSF and SFR cases are not confirmed due to laboratory testing limitations. In 2018, the only confirmed case (Levy County) demonstrated a greater than four-fold increase in titer.



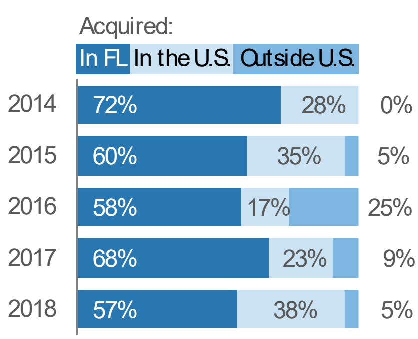
Typically more than 35% of cases are hospitalized; deaths are rare.



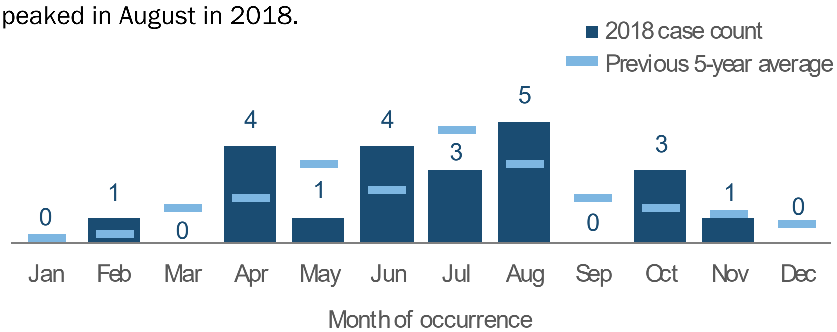
Most RMSF and SFR cases are sporadic. No outbreak-associated cases have been identified since 2014.



Most cases are acquired in Florida. In 2018, nine cases were imported from other states or countries.



RMSF and SFR cases are reported year-round without distinct seasonality, though peak transmission typically occurs during the summer months. Cases peaked in August in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Salmonellosis

Key Points

Salmonellosis is one of the most common bacterial causes of diarrheal illness in the U.S. The Centers for Disease Control and Prevention estimates that *Salmonella* bacteria cause about 1.35 million infections, 26,500 hospitalizations and 420 deaths in the U.S. each year. Florida frequently has the highest number and one of the highest incidence rates of salmonellosis cases in the U.S. The seasonal pattern is very strong, with cases peaking in late summer to early fall. Incidence is highest in infants <1 year old and decreases dramatically with age.

Disease Facts

Caused by *Salmonella* bacteria (excluding *Salmonella* serotype Typhi)

Illness is gastroenteritis (diarrhea, vomiting)

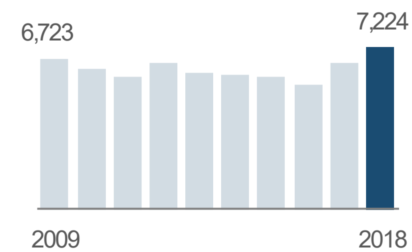
Transmitted via fecal-oral route, including person to person, animal to person, foodborne and waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor incidence over time, estimate burden of illness

The use of culture-independent diagnostic testing (CIDT) to identify *Salmonella* has increased in recent years. Florida changed the salmonellosis surveillance case definition in January 2017 to include CIDT in the criteria for probable cases, contributing to the increase in cases reported in 2017.

Most outbreak-associated cases are reflective of household clusters; however, some cases are part of in-state or multistate outbreaks. In 2018, Florida identified 184 cases associated with 45 different multistate outbreaks. A variety of vehicles were identified for 25 of these multistate outbreaks, including chicken, turkey, ground beef, shelled eggs, Mexican style cheeses, cut melon, flour, kratom and live poultry. No in-state outbreaks were identified in 2018.

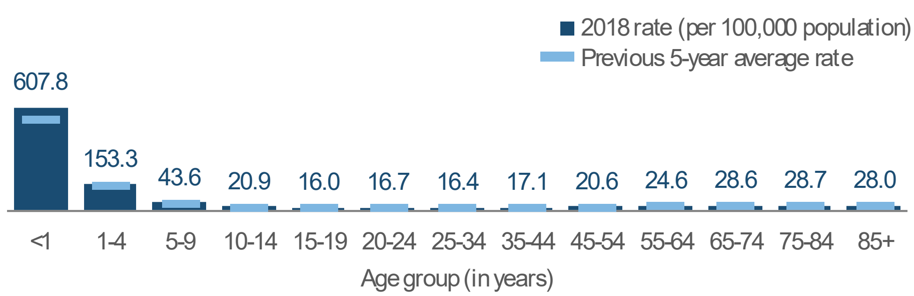
Salmonellosis incidence has remained relatively stable over the past ten years, but has increased consistently since 2016.



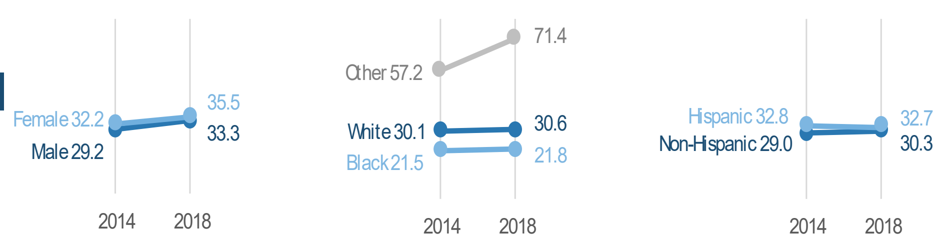
Disease Trends

Summary			
Number of cases			7,224
Rate (per 100,000 population)			34.5
Change from 5-year average rate			+13.6%
Age (in Years)			
Mean			29
Median			18
Min-max			0 - 102
Gender	**Number**	**(Percent)**	**Rate**
Female	3,807	(52.7)	35.5
Male	3,416	(47.3)	33.3
Unknown gender	1		
Race	**Number**	**(Percent)**	**Rate**
White	4,958	(75.4)	30.6
Black	773	(11.7)	21.8
Other	848	(12.9)	71.4
Unknown race	645		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	4,711	(72.8)	30.3
Hispanic	1,763	(27.2)	32.7
Unknown ethnicity	750		

The salmonellosis rate (per 100,000 population) is highest in infants <1 year old and children 1 to 4 years old, then decreases dramatically with age.



The salmonellosis rate (per 100,000 population) remained relatively stable in all demographics from 2014 to 2018 except in other races where it increased. The rates were similar across gender and ethnicity groups in 2018. The rate was notably higher in other races compared to whites and blacks in 2018.

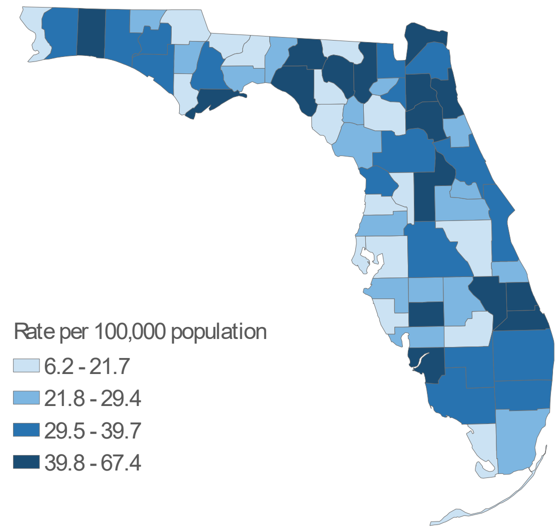


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Salmonellosis cases were missing 10.4% of ethnicity data in 2018 and 8.9% of race data in 2018.

Salmonellosis

Summary	Number
Number of cases	7,224
Case Classification	**Number (Percent)**
Confirmed	6,321 (87.5)
Probable	903 (12.5)
Outcome	**Number (Percent)**
Hospitalized	1,726 (23.9)
Died	31 (0.4)
Sensitive Situation	**Number (Percent)**
Daycare	582 (8.1)
Health care	101 (1.4)
Food handler	61 (0.8)
Imported Status	**Number (Percent)**
Acquired in Florida	6,196 (95.1)
Acquired in the U.S., not Florida	108 (1.7)
Acquired outside the U.S.	214 (3.3)
Acquired location unknown	706
Outbreak Status	**Number (Percent)**
Sporadic	6,303 (90.5)
Outbreak-associated	663 (9.5)
Outbreak status unknown	258

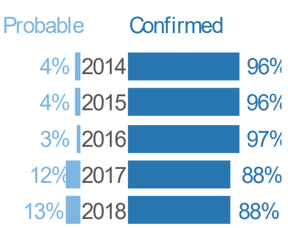
Salmonellosis occurs throughout the state. In 2018, the highest rates (per 100,000 population) were primarily in small, rural counties.



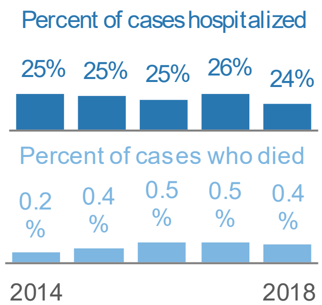
Rates are by county of residence for infections acquired in Florida (6,196 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

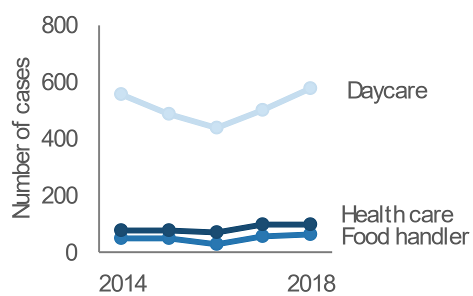
The case definition changed in 2017 to include CIDT in the probable case classification, resulting in more probable cases.



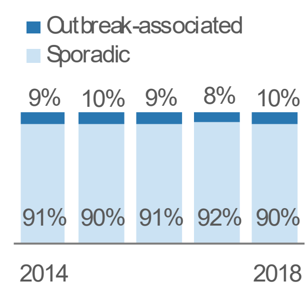
Approximately 25% of cases are hospitalized each year. Very few cases die.



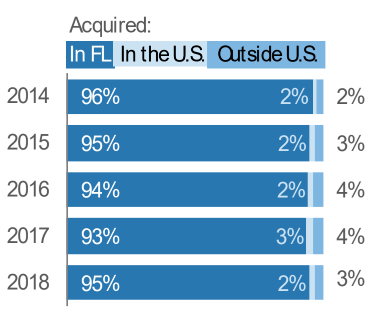
Cases in sensitive situations are monitored. The large number of cases in daycares reflects the age distribution of cases.



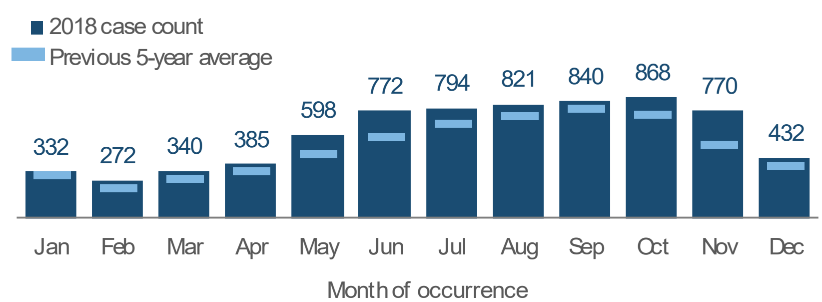
Most cases are sporadic; less than 10% are outbreak-associated and often reflect household clusters.



***Salmonella* infections are primarily acquired in Florida;** a small number of infections are imported from other states and countries.



Salmonellosis occurred throughout 2018 but has a strong seasonal pattern with cases peaking late summer to early fall, which is consistent with past years. The largest number of cases was reported in October in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Shiga Toxin-Producing *Escherichia coli* (STEC) Infection

Key Points

STEC infection is a common cause of diarrheal illness in the U.S., resulting in an estimated 265,000 illnesses each year. STEC infection incidence in Florida has generally increased over the past 10 years, likely due to advancements in laboratory techniques, resulting in improved identification of STEC infection. The dramatic increase in 2018 was due to a surveillance case definition change in January 2018 that expanded the probable case classification to include culture-independent diagnostic testing (CIDT).

Most outbreak-associated cases are reflective of household clusters; however, some cases are part of in-state or multistate outbreaks. In 2018, Florida identified 32 cases associated with six different multistate outbreaks. Of the four multistate outbreaks where a source was identified, three were linked to consumption of romaine lettuce and one to consumption of raw milk. In 2018, Florida identified 16 cases associated with five different in-state outbreaks. One outbreak was in a daycare, two outbreaks were associated with travel to Honduras and two outbreaks had unknown exposure sources.

Disease Facts

Caused by Shiga toxin-producing *Escherichia coli* (STEC) bacteria

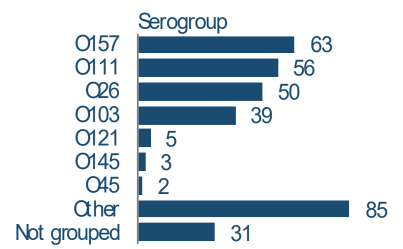
Illness is gastroenteritis (diarrhea, vomiting); less frequently, infection can lead to hemolytic uremic syndrome (HUS)

Transmitted via fecal-oral route; including person to person, animal to person, foodborne and waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor incidence over time, estimate burden of illness

STEC infection incidence increased dramatically in 2018 due to a case definition change.

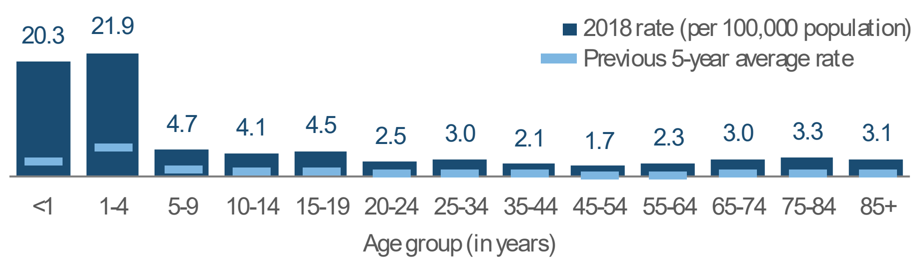
Serogroup O157 and the top six non-O157 serogroups were the cause of 65% of all confirmed STEC infections in 2018.



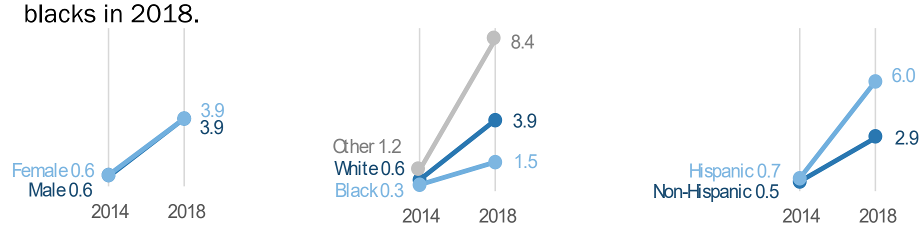
Disease Trends

Summary			
Number of cases			809
Rate (per 100,000 population)			3.9
Change from 5-year average rate			+484.6%
Age (in Years)			
Mean			29
Median			20
Min-max			0 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	414	(51.2)	3.9
Male	395	(48.8)	3.9
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	633	(80.3)	3.9
Black	55	(7.0)	1.5
Other	100	(12.7)	8.4
Unknown race	21		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	459	(58.5)	2.9
Hispanic	326	(41.5)	6.0
Unknown ethnicity	24		

The STEC infection rate (per 100,000 population) is highest in children 1 to 4 years old followed by infants <1 year old. Children <5 years old are particularly vulnerable to STEC infection and are at highest risk of developing HUS. Four (50%) of the eight HUS cases reported in 2018 were in children ≤5 years old.



The STEC infection rate (per 100,000 population) increased in all demographics from 2014 to 2018, driven primarily by the dramatic increase in cases in 2018. The rates were similar by gender in 2018, but higher in Hispanics than non-Hispanics. The rate was notably higher in other races compared to whites and blacks in 2018.

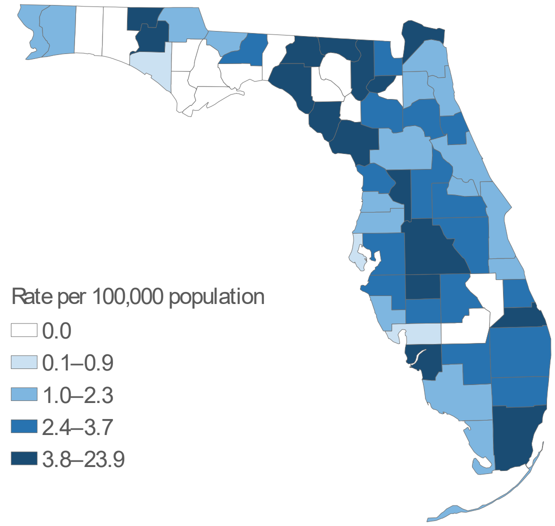


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Shiga toxin-producing E. coli infection cases were missing 10.3% of ethnicity data in 2014 and 6.8% of race data in 2014.

Shiga Toxin-Producing *Escherichia coli* (STEC) Infection

Summary	Number
Number of cases	809
Case Classification	**Number (Percent)**
Confirmed	334 (41.3)
Probable	475 (58.7)
Outcome	**Number (Percent)**
Hospitalized	175 (21.6)
Died	3 (0.4)
Sensitive Situation	**Number (Percent)**
Daycare	55 (6.8)
Health care	5 (0.6)
Food handler	16 (2.0)
Imported Status	**Number (Percent)**
Acquired in Florida	610 (90.2)
Acquired in the U.S., not Florida	5 (0.7)
Acquired outside the U.S.	61 (9.0)
Acquired location unknown	133
Outbreak Status	**Number (Percent)**
Sporadic	613 (79.0)
Outbreak-associated	163 (21.0)
Outbreak status unknown	33

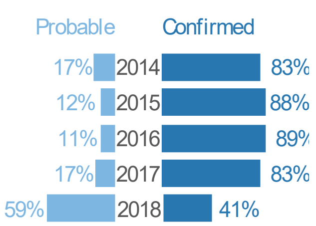
STEC infection cases occurred in most areas of the state, though less commonly in the Florida Panhandle in 2018. The highest rates (per 100,000 population) were primarily in small, rural counties in 2018.



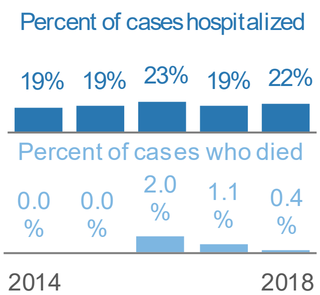
Rates are by county of residence for infections acquired in Florida (610 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

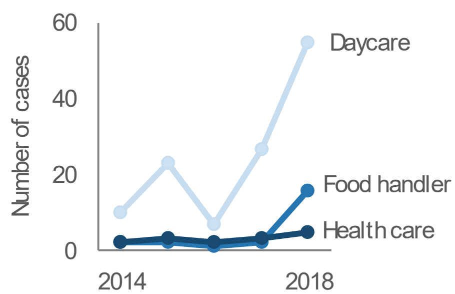
The case definition changed in 2018 to include CIDT in the probable case classification, resulting in more probable cases.



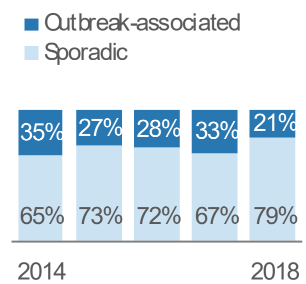
Between 15% and 25% of cases are hospitalized each year. Very few cases die (more likely in cases that develop HUS).



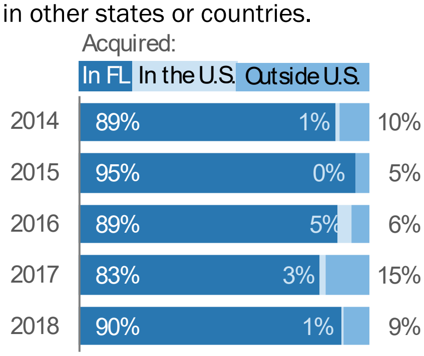
Outbreaks in daycares in 2015, 2017 and 2018 contributed to higher numbers of cases in that setting.



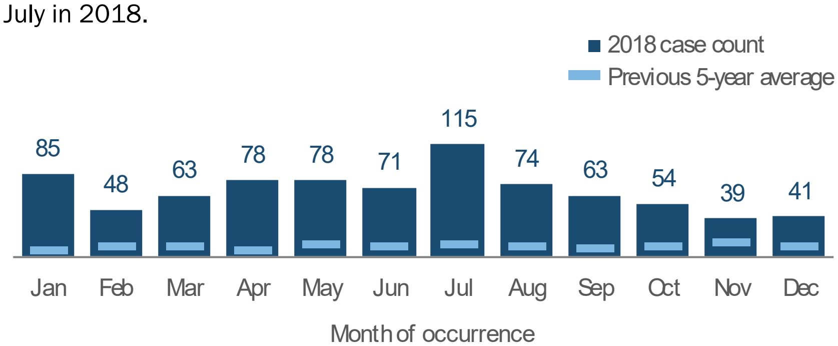
Less than 35% of cases are outbreak-associated each year.



Most STEC infections are acquired in Florida; some infections are acquired in other states or countries.



There is no distinct seasonality to STEC infection cases in Florida. Cases occur at moderate levels year-round. More cases occurred in January and July in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Shigellosis

Key Points

Shigellosis is a common cause of diarrheal illness in the U.S., resulting in an estimated 450,000 illnesses each year. Shigellosis has a cyclic temporal pattern with large community-wide outbreaks, frequently involving daycare centers, occurring every three to five years. Incidence is consistently highest in children <10 years old.

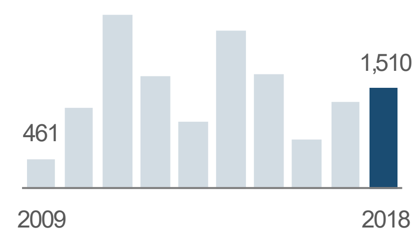
The use of culture-independent diagnostic testing (CIDT) to identify *Shigella* has increased in recent years. Florida changed the shigellosis surveillance case definition in January 2017 to include CIDT in the criteria for probable cases, contributing to the increase in cases reported in 2017.

Antimicrobial resistance in *Shigella* is a growing concern. In the U.S., most *Shigella* is already resistant to ampicillin and trimethoprim/sulfamethoxazole. Health care providers rely on alternative drugs such as ciprofloxacin and azithromycin to treat *Shigella* infections when needed, though treatment of shigellosis with antibiotics is not routinely recommended. The proportion of cases with isolates resistant to ampicillin, trimethoprim/sulfamethoxazole, ciprofloxacin or azithromycin steadily increased from 2015 to 2017 but decreased in 2018. For confirmed shigellosis cases with antimicrobial resistance testing results available (about 40% to 70% each year), the percentage of isolates resistant to one or more of these antibiotics increased from 2015 (37%) to 2017 (60%) but decreased in 2018 (46%).

Disease Facts

- **Caused** by *Shigella* bacteria
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person to person, foodborne and waterborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., ill daycare attendee), monitor incidence over time, estimate burden of illness

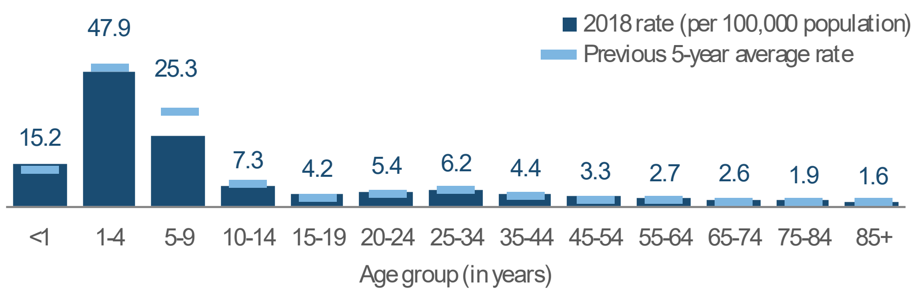
Shigellosis incidence increased in 2018, consistent with historic cyclical patterns; recent peaks occurred in 2011 and 2014.



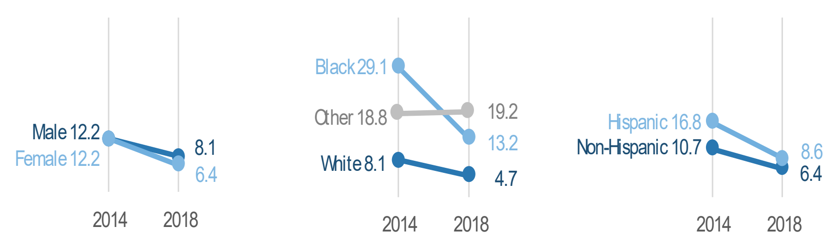
Disease Trends

Summary			
Number of cases			1,510
Rate (per 100,000 population)			7.2
Change from 5-year average rate			-0.8%
Age (in Years)			
Mean			21
Median			9
Min-max			0 - 92
Gender	**Number**	**(Percent)**	**Rate**
Female	681	(45.1)	6.4
Male	829	(54.9)	8.1
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	766	(52.4)	4.7
Black	468	(32.0)	13.2
Other	228	(15.6)	19.2
Unknown race	48		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	990	(68.0)	6.4
Hispanic	466	(32.0)	8.6
Unknown ethnicity	54		

The shigellosis rate (per 100,000 population) is highest in children 1 to 4 years old, followed by children 5 to 9 years old then infants <1 year old.



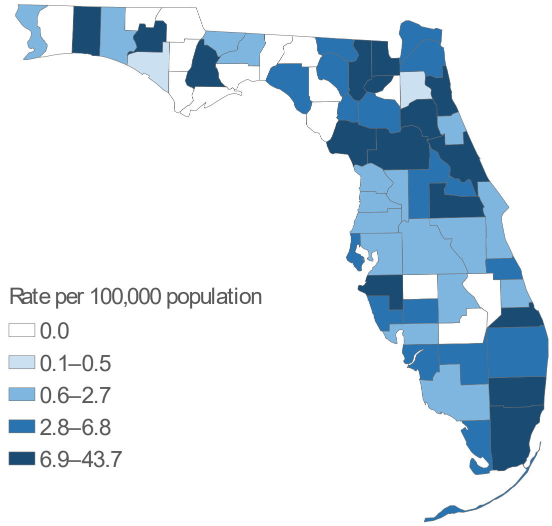
The shigellosis rate (per 100,000 population) decreased in all demographics from 2014 to 2018, except in other races where it increased slightly. The rates were slightly higher in males and Hispanics compared to females and non-Hispanics in 2018. The rate was highest in other races, followed by blacks then whites in 2018.



Shigellosis

Summary	Number
Number of cases	1,510
Case Classification	**Number (Percent)**
Confirmed	776 (51.4)
Probable	734 (48.6)
Outcome	**Number (Percent)**
Hospitalized	290 (19.2)
Died	1 (0.1)
Sensitive Situation	**Number (Percent)**
Daycare	305 (20.2)
Health care	29 (1.9)
Food handler	25 (1.7)
Imported Status	**Number (Percent)**
Acquired in Florida	1,282 (92.5)
Acquired in the U.S., not Florida	14 (1.0)
Acquired outside the U.S.	90 (6.5)
Acquired location unknown	124
Outbreak Status	**Number (Percent)**
Sporadic	992 (66.3)
Outbreak-associated	505 (33.7)
Outbreak status unknown	13

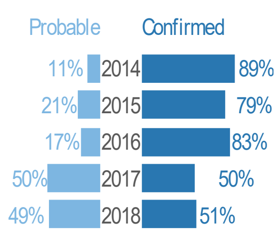
Shigellosis cases occurred in most areas of the state, though less commonly in the Florida Panhandle in 2018. The highest rates (per 100,000 population) were in northern and southeast Florida. Geographic distribution varies by year, often driven by clusters of counties experiencing large outbreaks.



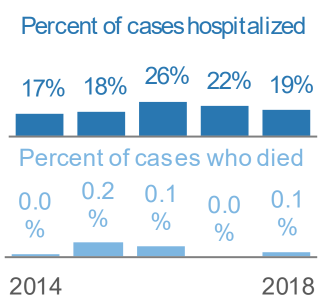
Rates are by county of residence for infections acquired in Florida (1,282 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

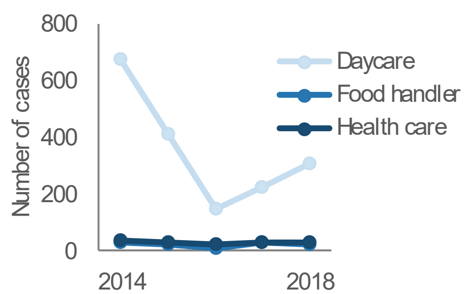
The case definition changed in 2017 to include CIDT in the probable case classification, resulting in more probable cases.



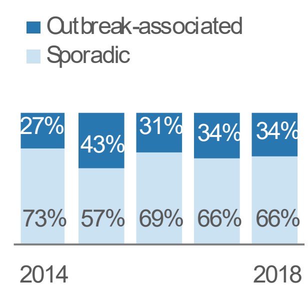
Between 15% and 30% of cases are hospitalized each year. Deaths are rare.



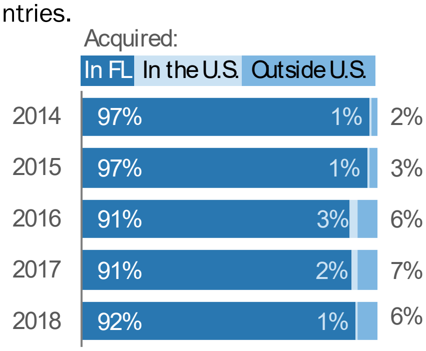
Person-to-person outbreaks are common in daycare settings. In 2018, 34% of outbreak-associated cases occurred in daycare settings.



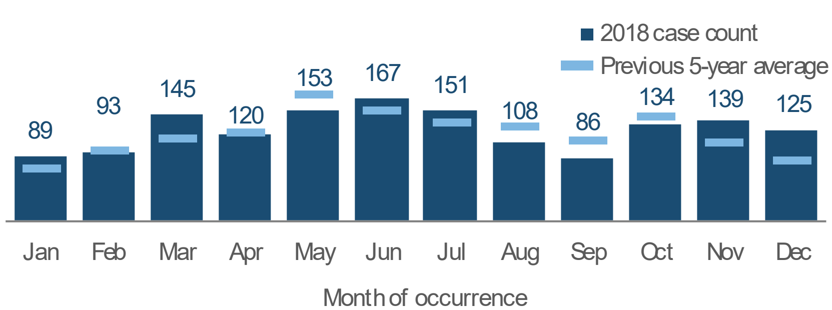
Outbreaks are common; as few as 10 *Shigella* bacteria can result in illness, making it easy to spread from person to person.



Most *Shigella* infections are acquired in Florida; a small number of infections are acquired from other states and countries.



Shigellosis occurred throughout 2018, with activity peaking during the summer. Activity in 2018 was relatively consistent with the previous five-year average.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Syphilis (Excluding Congenital)

Key Points

Syphilis is separated into early syphilis (i.e., syphilis of less than one year duration, which includes latent and infectious stages) and late or late latent syphilis (i.e., syphilis diagnosed more than one year after infection). Syphilis creates an open sore at the point of infection, called a primary lesion, during the infectious stage. A primary lesion can work as a conduit for HIV transmission and puts either the person displaying the lesion or their sexual partners at risk of HIV infection if either partner is living with HIV. In 2018, 33% of infectious syphilis cases were reported in individuals who were known to be coinfected with HIV, a 2% decrease from 2017.

Disease Facts

Caused by *Treponema pallidum* bacteria

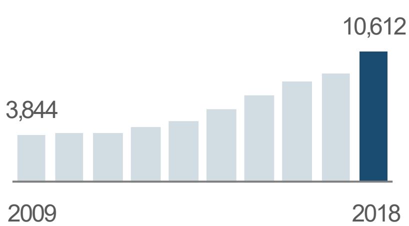
Illness includes sores on genitals, anus or mouth; rash on the body

Transmitted sexually via anal, vaginal or oral sex and sometimes from mother to infant during pregnancy or delivery

Under surveillance to implement interventions immediately for every case, monitor incidence over time, estimate burden of illness, target prevention education programs, evaluate treatment and prevention programs

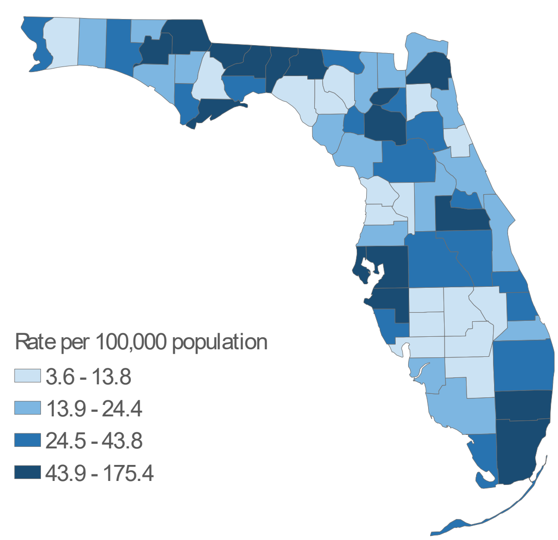
Disease Trends

In 2018, syphilis incidence continued to increase, both in Florida and nationally.



Summary			
Number of cases			10,612
Rate (per 100,000 population)			50.6
Change from 5-year average rate			+43.7%
Age (in Years)			
Mean			36
Median			34
Min-max			13 - 99
Gender	**Number**	**(Percent)**	**Rate**
Female	1,830	(17.2)	17.1
Male	8,782	(82.8)	85.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	5,365	(53.8)	33.1
Black	3,571	(35.8)	100.6
Other	1,031	(10.3)	86.7
Unknown race	645		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	6,447	(66.2)	41.4
Hispanic	3,289	(33.8)	61.0
Unknown ethnicity	876		

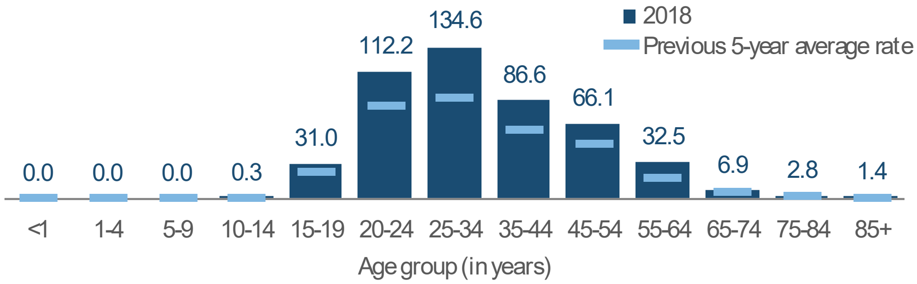
Syphilis occurs throughout the state. The highest rates (per 100,000 population) in 2018 were in large counties, including Miami-Dade (101.2), Broward (93.1) and Orange (74.9) as well as in small rural counties, including Union (175.4 based on 28 cases), Gadsden (107.9) and Washington (67.3).



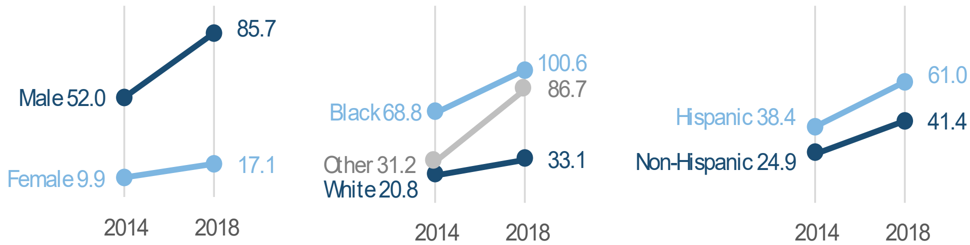
Rates are by county of residence, regardless of where infection was acquired (10,612 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

Syphilis (Excluding Congenital)

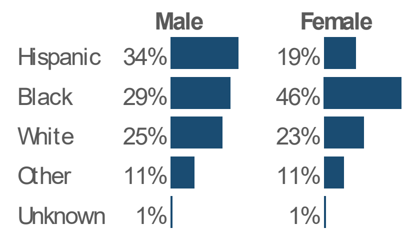
The syphilis rate (per 100,000 population) is highest in adults 20 to 54 years old and peaks in adults 25 to 34 years old.



The syphilis rate (per 100,000 population) increased in all gender, race and ethnic groups from 2014 to 2018. The increase was most notable in males and in other races. The rates are highest in men, blacks and Hispanics.



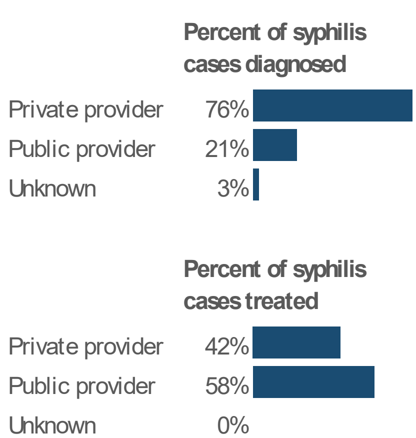
Race and ethnicity differed between genders. Black females and Hispanic males were at increased risk for syphilis.



Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Syphilis cases (excluding congenital) w ere missing 7.8% of ethnicity data in 2014, 8.3% of ethnicity data in 2018 and 6.1% of race data in 2018.

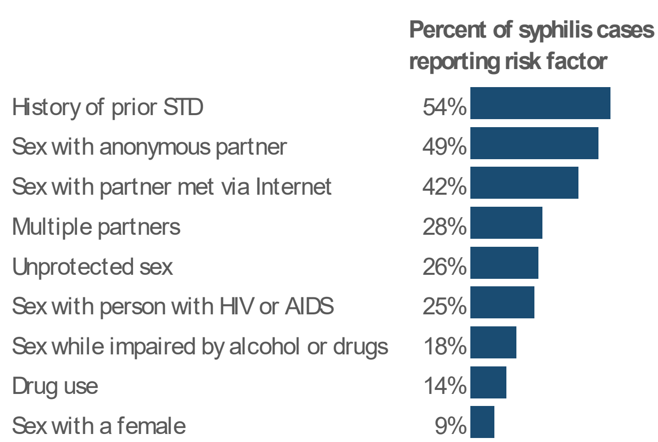
In 2018, most people (76%) went to their own private provider for STD testing. However, the recommended treatment for syphilis, per the Centers for Disease Control and Prevention, is parenterally administered penicillin G benzathine. As many providers do not keep the standard benzathine penicillin product Bicillin on hand, they often refer their patients to county health departments for treatment.

In 2018, 58% of syphilis cases were treated by public providers.



Men who have sex with men (MSM) are identified through risk behavior information collected during case investigations. The true incidence of the MSM risk is difficult to estimate due to many factors. In 2018, most (73%) syphilis cases in males were in men who reported having sex with other men.

MSM with syphilis who were interviewed in 2018 (6,065 men) disclosed an array of risk behaviors, which included sex with anonymous partners and sex with females.



Tuberculosis

Key Points

Tuberculosis (TB) continues to be a public health threat in Florida. Incidence has generally declined over the past decade, though small fluctuations can occur year to year. Slight increases in 2015, 2016 and 2018 were observed after historic lows in 2014 and 2017. Medically underserved and low-income populations, including racial and ethnic minorities, have high rates of TB. In most countries and in Florida, TB incidence is much higher in men than women. The rate per 100,000 population in blacks in Florida was almost three times as high as the rate in whites in 2018.

Disease Facts

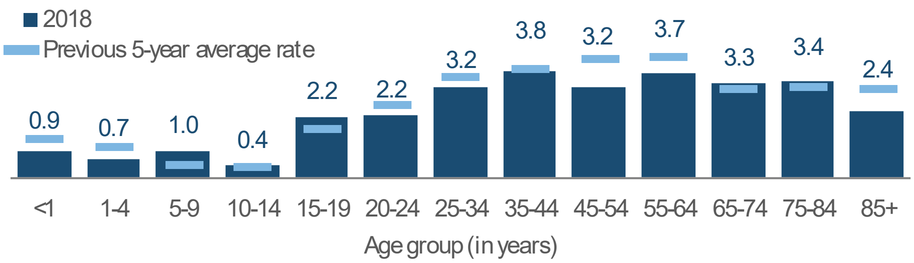
Caused by *Mycobacterium tuberculosis* bacteria

Illness is usually respiratory (severe cough, pain in chest), but can affect all parts of the body including kidneys, spine or brain

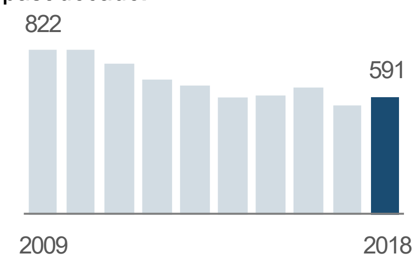
Transmitted via inhalation of aerosolized droplets from people with active tuberculosis

Under surveillance to implement effective interventions immediately for every case to prevent further transmission, monitor directly observed therapy prevention programs, evaluate trends

The TB rate (per 100,000 population) is low in children and ranged from 3.2 to 3.8 in adults 25 to 84 years old.



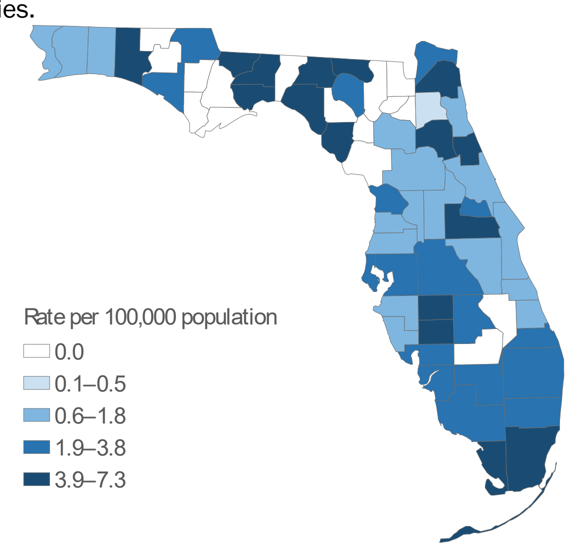
Despite a slight increase in 2018, TB incidence has generally decreased over the past decade.



Disease Trends

Summary			
Number of cases			591
Rate (per 100,000 population)			2.8
Change from 5-year average rate			-7.3%
Age (in Years)			
Mean			48
Median			47
Min-max			0 - 94
Gender	**Number**	**(Percent)**	**Rate**
Female	228	(38.6)	2.1
Male	363	(61.4)	3.5
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	309	(52.3)	1.9
Black	193	(32.7)	5.4
Other	89	(15.1)	7.5
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	396	(67.0)	2.5
Hispanic	195	(33.0)	3.6
Unknown ethnicity	0		

TB occurred in most parts of the state in 2018, though was less common in the Panhandle. While the highest rates (per 100,000 population) tended to be in small, rural counties, over 33% of all TB cases were in Miami-Dade (124 cases) and Broward (67 cases) counties.

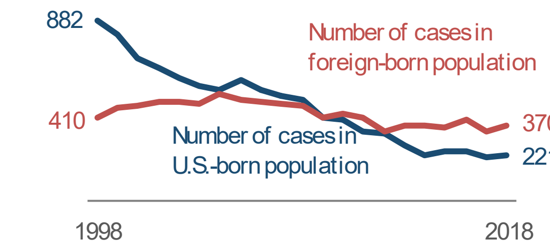


Rates are by county of residence, regardless of where infection was acquired (591 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

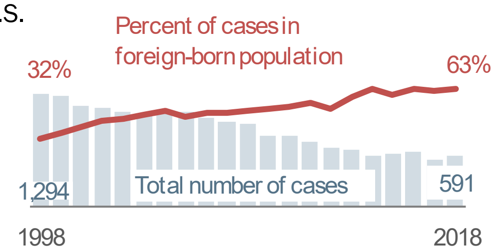
Tuberculosis

The rate of TB in the U.S.-born population in Florida has been decreasing faster than the rate among the foreign-born population. Being born in a country where TB is prevalent is one of the most significant risk factors for developing TB and is a focus for TB prevention and control efforts in Florida. In 2018, 63% of all TB cases in Florida were in the foreign-born population. The most common countries of origin in 2018 included Haiti, Mexico, the Philippines, Vietnam, Guatemala, Colombia and Cuba, accounting for 213 (58%) of 370 cases identified in the foreign-born population.

In 1998, there were twice as many TB cases in the U.S.-born population than the foreign-born population. In 2018, 67% more cases were in foreign-born people than U.S.-born.

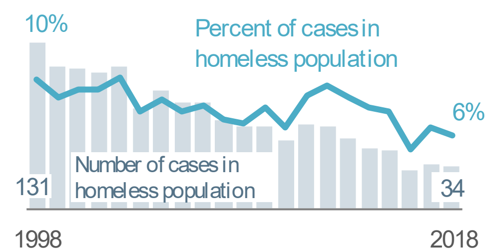


As the number of TB cases has declined in Florida, the percentage of those cases in the foreign-born population has increased. In 2018, 63% of cases were in people born outside the U.S.

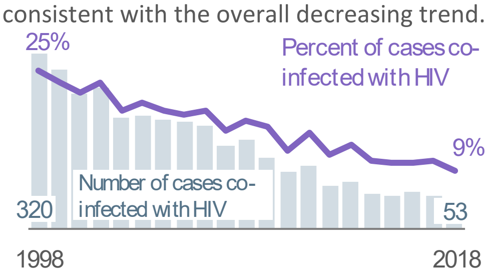


People experiencing homelessness are at increased risk for disease and are a focus for TB prevention and control efforts in Florida. Since 1998, the total number of TB cases among the homeless population in Florida has decreased by over 50%; however, in the same time period, the percentage of people with TB who are homeless remained relatively stable (8% to 10%) until 2012. Since 2012, the percentage of people with TB who are homeless decreased from 9.6% to 5.8% in 2018.

Despite a slight increase in 2017, the number and percentage of cases among the homeless population has steadily decreased since 2012.



In 2018, 9% of TB cases were co-infected with HIV. This is a slight decrease from 2017 and is consistent with the overall decreasing trend.



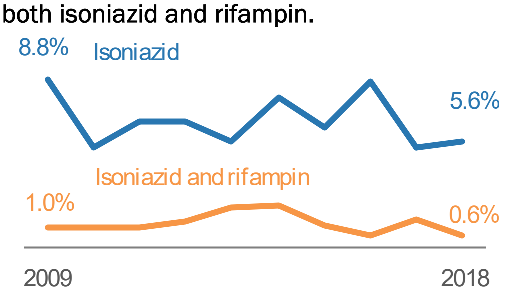
Untreated HIV infection remains the biggest risk factor for developing active TB disease following infection with TB and is a focus for TB prevention and control efforts in Florida. TB and HIV co-infection has been declining modestly but steadily over time in Florida. In the last three years the decline has leveled off at around 10%.

Drug resistance arises due to improper use of antibiotics in the chemotherapy of drug-susceptible TB patients. Multidrug-resistant TB is caused by *M. tuberculosis* bacteria that are resistant to at least isoniazid and rifampin, the two most potent TB drugs. In 2018, 485 TB cases were tested in Florida for resistance to isoniazid and rifampin. Over the past 10 years:

- Resistance to isoniazid alone ranged from 5% to 9%.
- Resistance to isoniazid and rifampin ranged from 0.6 to 2.2%.

In 2018, resistance to isoniazid alone increased and resistance to isoniazid and rifampin decreased, but were within the 10-year ranges.

In 2018, 5.6% of tested cases were resistant to isoniazid alone, and 0.6% were resistant to both isoniazid and rifampin.



Varicella (Chickenpox)

Key Points

Varicella is a childhood disease that became reportable in Florida in late 2006. A vaccine was first released in the U.S. in 1995, and a two-dose schedule was recommended in 2008 by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices. Beginning with the 2008 to 2009 school year, children entering kindergarten in Florida were required to receive two doses of varicella vaccine per Florida Administrative Code Rule 64D-3.046. Due to effective vaccination programs, there was a steady decrease in incidence in Florida from 2008 to 2014. Incidence increased slightly in 2015 and has remained elevated.

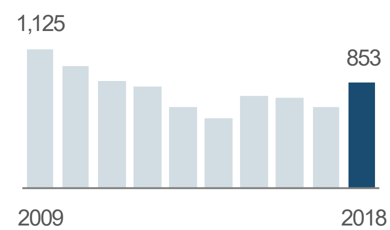
Disease Facts

- **Caused** by varicella-zoster virus (VZV)
- **Illness** commonly includes vesicular rash, itching, tiredness and fever
- **Transmitted** person to person by contact with or inhalation of aerosolized infective respiratory tract droplets or secretions, or direct contact with VZV vesicular lesions
- **Under surveillance** to identify and control outbreaks, monitor effectiveness of immunization programs and vaccines, monitor trends and severe outcomes

The rate of varicella remained highest among infants <1 year old who are too young to be vaccinated. As a result, vaccination of siblings and caregivers is particularly important to protect this group.

The number of outbreak-associated cases increased from 125 (19.1%) in 2017 to 256 (30.8%) in 2018. Of the 256 outbreak-associated cases identified, most were small household clusters. Twelve outbreaks (defined as five or more cases linked in a single setting) were identified in 2018, including four outbreaks in correctional facilities, two outbreaks in daycares and six outbreaks in schools. Counties with ≥10 outbreak-associated cases included Broward (36), Pinellas (35), Palm Beach (27), Hillsborough (21), Polk (15), Miami-Dade (14) and Manatee (11).

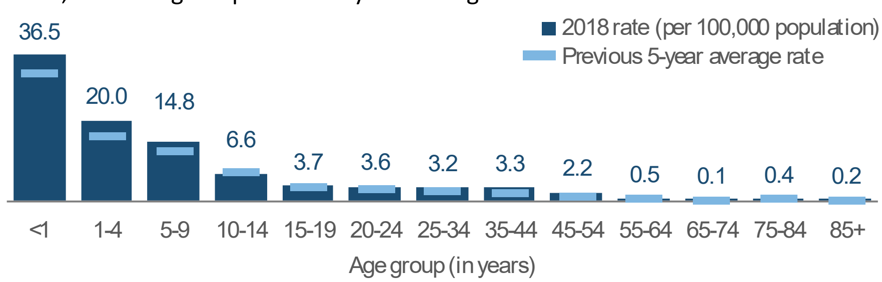
Varicella incidence increased in 2018.



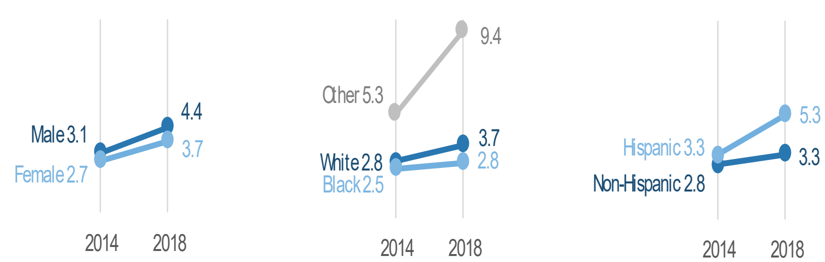
Disease Trends

Summary			
Number of cases			853
Rate (per 100,000 population)			4.1
Change from 5-year average rate			+20.7%
Age (in Years)			
Mean			17
Median			9
Min-max			0 - 89
Gender	**Number**	**(Percent)**	**Rate**
Female	399	(46.8)	3.7
Male	454	(53.2)	4.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	595	(73.8)	3.7
Black	99	(12.3)	2.8
Other	112	(13.9)	9.4
Unknown race	47		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	515	(64.5)	3.3
Hispanic	284	(35.5)	5.3
Unknown ethnicity	54		

Infants <1 year old are too young to be vaccinated. As a result, vaccination of siblings and caregivers is particularly important to protect this group. The varicella rate (per 100,000 population) remained highest in infants <1 year old in 2018, exceeding the previous 5-year average.



The varicella rate (per 100,000 population) is relatively similar among males and females. It is also similar among whites and blacks, and since 2014, the rate in other races has increased notably. The rate in Hispanics has also increased since 2014.

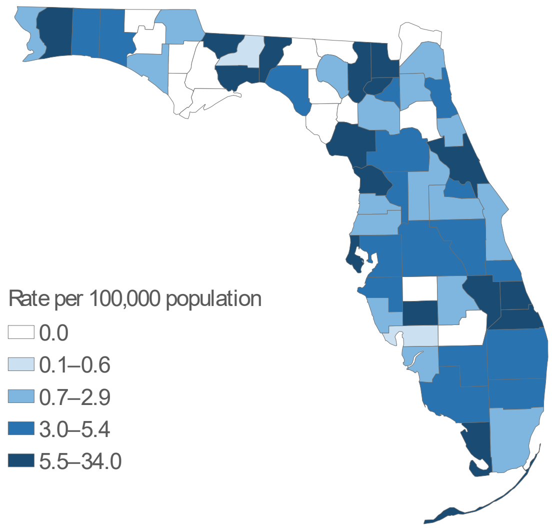


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Varicella cases were missing 6.3% of ethnicity data in 2018 and 5.5% of race data in 2018.

Varicella (Chickenpox)

Summary	Number
Number of cases	853
Case Classification	**Number (Percent)**
Confirmed	339 (39.7)
Probable	514 (60.3)
Outcome	**Number (Percent)**
Hospitalized	50 (5.9)
Died	1 (0.1)
Imported Status	**Number (Percent)**
Acquired in Florida	768 (95.2)
Acquired in the U.S., not Florida	15 (1.9)
Acquired outside the U.S.	24 (3.0)
Acquired location unknown	46
Outbreak Status	**Number (Percent)**
Sporadic	576 (69.2)
Outbreak-associated	256 (30.8)
Outbreak status unknown	21

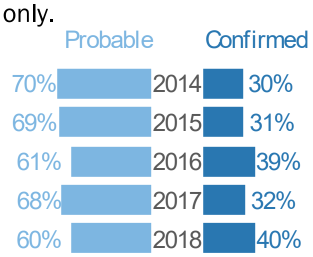
Varicella occurred throughout the state in 2018. Rates (per 100,000 population) varied regardless of county population. Rates ranged from 0 to 34 per 100,000.



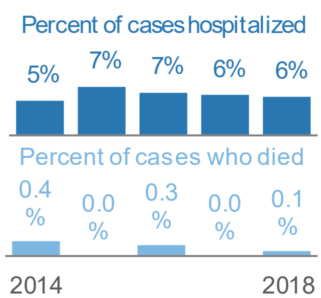
Rates are by county of residence for infections acquired in Florida (768 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

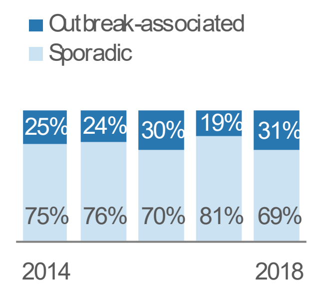
Just over one-third of cases are confirmed. Most varicella cases are classified as probable based on symptoms only.



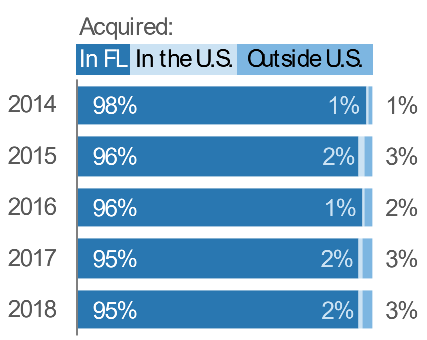
Most varicella cases do not require hospitalization; deaths are very rare.



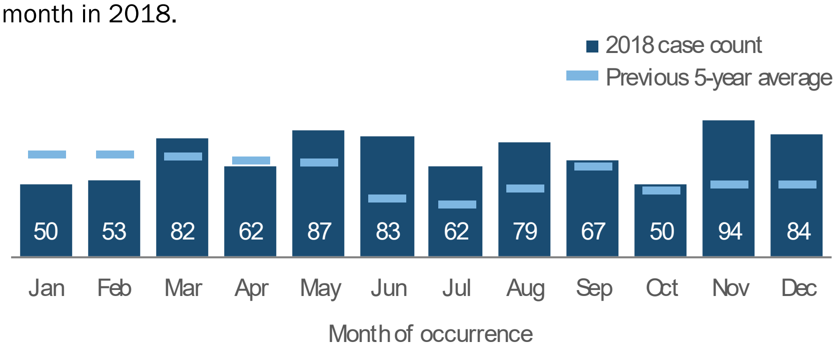
Less than one-third of cases are outbreak-associated. In 2018, 31% of cases were outbreak-associated.



Most VZV infections are acquired in Florida. Each year, a few cases are imported from other states and countries.



Due to robust vaccination programs, there is no longer discernable seasonality for varicella in Florida. Between 50 and 94 cases occurred each month in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status and month of occurrence.

Vibriosis (Excluding Cholera)

Key Points

Vibrio species are endemic in Florida's seawater. Incidence is typically higher in the summer when exposure to seawater is more common and warmer water is conducive to bacterial growth. Incidence increased notably in 2017, largely due to a change in the probable case definition, which expanded in 2017 to include culture-independent diagnostic testing (CIDT).

Vibrio vulnificus infections typically occur in people who have chronic kidney or liver disease, a history of alcoholism or are immunocompromised. Of the 42 *V. vulnificus* cases in 2018, 32 (76.2%) had underlying medical conditions. *V. vulnificus* can cause particularly severe disease, with about 50% of bloodstream infections being fatal.

Of the 42 cases due to *V. vulnificus* in 2018, 36 (86%) were hospitalized and nine (21%) died, accounting for 9 of the 12 total vibriosis deaths. The remaining three deaths were associated with infection with *V. parahaemolyticus* (one case), *V. furnissii* (one case) and an unidentified *Vibrio* species (one case).

Of the 12 people who died from vibriosis, three reported consuming seafood, four reported having a wound with seawater exposure, one had multiple exposures and four had other or unknown exposures.

Disease Facts

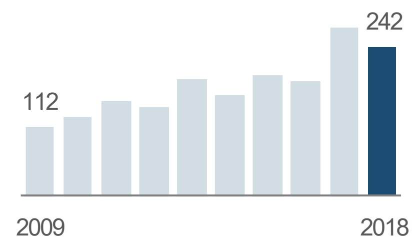
Caused by bacteria in the family Vibrionaceae

Illness can be gastroenteritis (diarrhea, vomiting), bacteremia, septicemia, wound infection, cellulitis; other common symptoms include low-grade fever, headache and chills

Transmitted via food, water, wound infections from direct contact with brackish water or salt water where the bacteria naturally live or direct contact with marine wildlife

Under surveillance to identify sources of transmission (e.g., shellfish collection area) and mitigate source, monitor incidence over time, estimate burden of illness

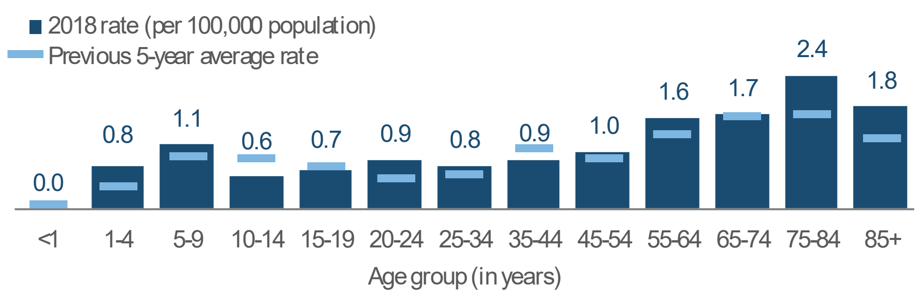
Vibriosis incidence decreased slightly in 2018.



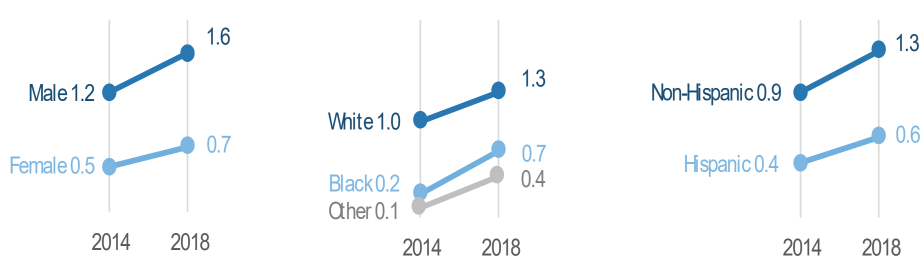
Disease Trends

Summary			
Number of cases			242
Rate (per 100,000 population)			1.2
Change from 5-year average rate			+13.7%
Age (in Years)			
Mean			51
Median			55
Min-max			2 - 93
Gender	**Number**	**(Percent)**	**Rate**
Female	73	(30.2)	0.7
Male	169	(69.8)	1.6
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	207	(87.7)	1.3
Black	24	(10.2)	0.7
Other	5	(2.1)	NA
Unknown race	6		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	197	(85.7)	1.3
Hispanic	33	(14.3)	0.6
Unknown ethnicity	12		

The vibriosis rate (per 100,000 population) is usually highest in adults 55 to 84 years old. In 2018, the rate was highest in adults 75 to 84 years old.



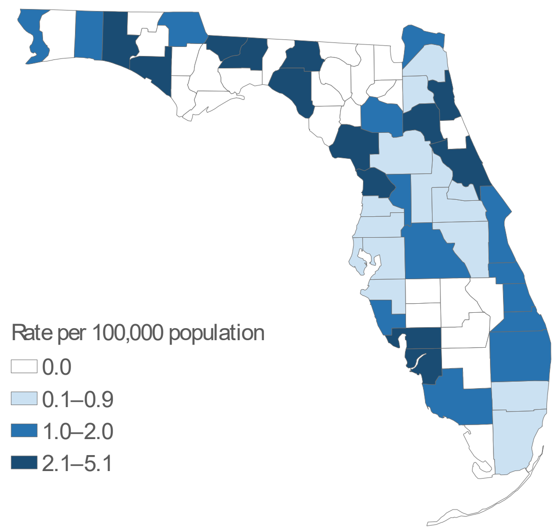
Vibriosis rates (per 100,000 population) increased in all gender, race and ethnicity groups from 2014 to 2018. The rate is consistently higher in males, whites and non-Hispanics.



Vibriosis (Excluding Cholera)

Summary	Number
Number of cases	242
Case Classification	**Number (Percent)**
Confirmed	186 (76.9)
Probable	56 (23.1)
Outcome	**Number (Percent)**
Hospitalized	109 (45.0)
Died	12 (5.0)
Imported Status	**Number (Percent)**
Acquired in Florida	214 (90.3)
Acquired in the U.S., not Florida	13 (5.5)
Acquired outside the U.S.	10 (4.2)
Acquired location unknown	5
Outbreak Status	**Number (Percent)**
Sporadic	240 (99.2)
Outbreak-associated	2 (0.8)
Outbreak status unknown	0

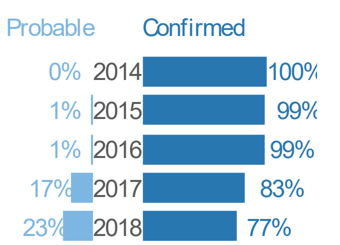
Vibriosis occurred in most parts of the state in 2018. The rates (per 100,000 population) varied across the state with some of the highest rates in low-population counties.



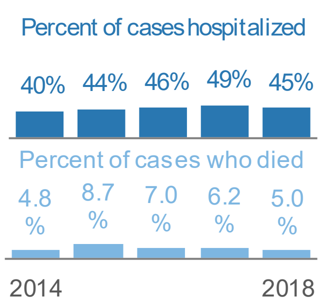
Rates are by county of residence for infections acquired in Florida (214 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

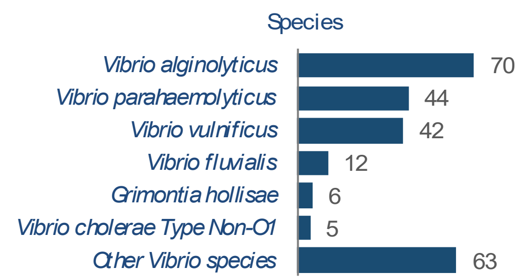
The case definition changed in 2017 to include CIDT in the probable case classification, resulting in more probable cases.



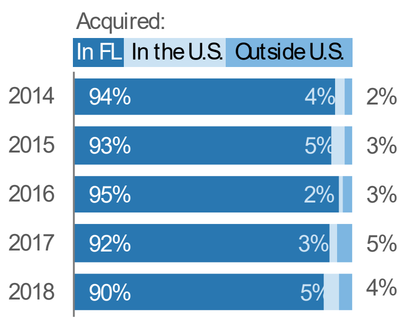
Between 40% and 50% of cases are hospitalized; deaths do occur. Nine people infected with *V. vulnificus* died in 2018.



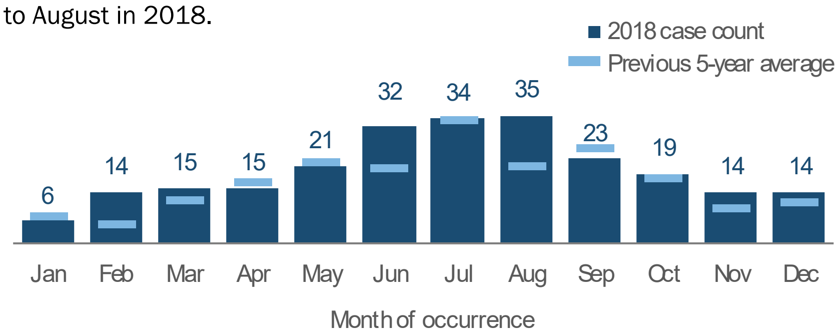
In 2018, the most commonly reported *Vibrio* species were *V. alginolyticus*, *V. parahaemolyticus* and *V. vulnificus*. The number of other *Vibrio* infections was largely due to CIDT, which cannot differentiate between species.



Most *Vibrio* infections are acquired in Florida. In 2018, 23 infections were acquired in other states or countries.



Vibriosis occurs throughout the year in Florida, with activity typically peaking during the summer months. Over 30 cases occurred each month from June to August in 2018.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

West Nile Virus Disease

Key Points

West Nile virus (WNV) is a mosquito-borne flavivirus that was first introduced to the northeastern U.S. in 1999 and first detected in Florida in 2001. Since its initial detection, WNV activity has been reported in all 67 Florida counties. Approximately 80% of people infected with WNV show no clinical symptoms, 20% have mild non-neuroinvasive illness and less than 1% suffer from the neuroinvasive form of illness. *Culex* species (mosquitoes) and wild birds are the natural hosts. Humans and horses can become infected when bitten by a mosquito infected with WNV.

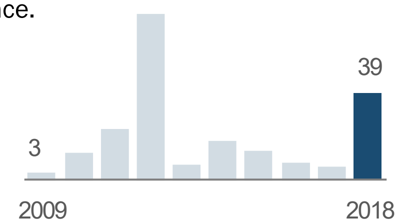
WNV can also be transmitted to humans via contaminated blood transfusion or organ transplantation. Since 2003, all blood donations are screened for WNV prior to transfusion. People spending large amounts of time outside (due to occupation, hobbies or homelessness) or not using insect repellant or other forms of prevention are at higher risk of becoming infected. In 2018, three WNV disease cases were identified through blood donor screening, testing positive prior to developing symptoms.

Two additional WNV disease cases were identified in 2018 but not reported until 2019 and will therefore be included in the 2019 report. Case counts and rates from this report may differ from those found in other vector-borne disease reports as different criteria are used to assemble the data.

Disease Facts

- **Caused** by West Nile virus
- **Illness** can be asymptomatic, mild non-neuroinvasive (e.g., headache, fever, pain, fatigue), or neuroinvasive (e.g., meningitis and encephalitis with possible irreversible neurological damage, paralysis, coma or death)
- **Transmitted** via bite of infective mosquito or by blood transfusion or organ transplant
- **Under surveillance** to identify areas where WNV is being transmitted to target prevention education for the public, monitor incidence over time, estimate burden of illness

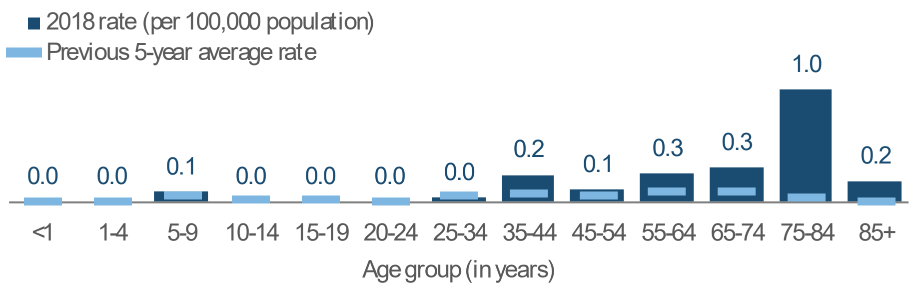
The incidence of West Nile virus disease increased sharply in 2018. Dry environmental conditions and herd immunity in bird populations may help explain periods of lower incidence.



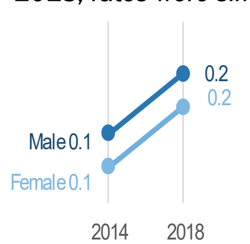
Disease Trends

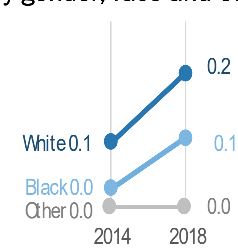
Summary			
Number of cases			39
Rate (per 100,000 population)			0.2
Change from 5-year average rate			+261.9%
Age (in Years)			
Mean			61
Median			66
Min-max			6 - 85
Gender	**Number**	**(Percent)**	**Rate**
Female	17	(43.6)	NA
Male	22	(56.4)	0.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	35	(89.7)	0.2
Black	4	(10.3)	NA
Other	0	(0.0)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	39	(100.0)	0.2
Hispanic	0	(0.0)	NA
Unknown ethnicity	0		

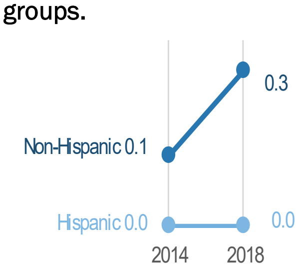
The rate of West Nile virus disease (per 100,000 population) was highest in adults 75 to 84 years old in 2018. People >60 years old are at greater risk of severe illness. In 2018, 59% of cases were among people >60 years old; all but one had neuroinvasive illness. Three of the four deaths were in people >60 years old.



The rate of West Nile virus disease (per 100,000 population) increased slightly in all demographics from 2014 to 2018, except for other races and Hispanics. In 2018, rates were similar by gender, race and ethnicity groups.



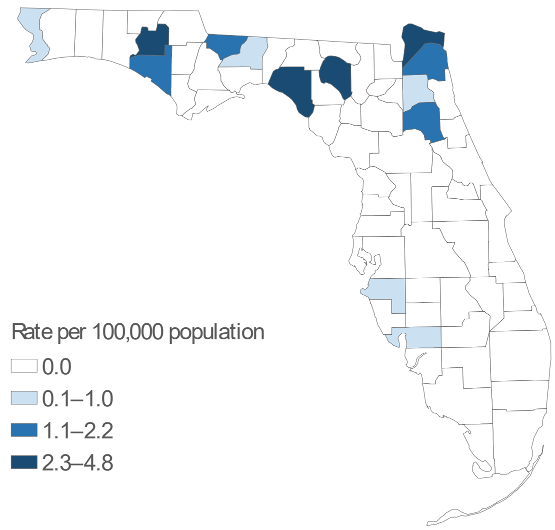




West Nile Virus Disease

Summary	Number
Number of cases	39
Case Classification	**Number (Percent)**
Confirmed	26 (66.7)
Probable	13 (33.3)
Clinical Type	**Number (Percent)**
Neuroinvasive	34 (87.2)
Non-neuroinvasive	5 (12.8)
Outcome	**Number (Percent)**
Hospitalized	33 (84.6)
Died	4 (10.3)
Imported Status	**Number (Percent)**
Acquired in Florida	33 (84.6)
Acquired in the U.S., not Florida	6 (15.4)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	39 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

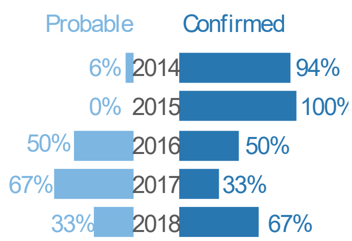
Locally acquired West Nile virus disease cases occurred in residents of 13 Florida counties in 2018, primarily in north Florida. Cases were most commonly reported in Duval (12), Bay (four) and Nassau (four) counties.



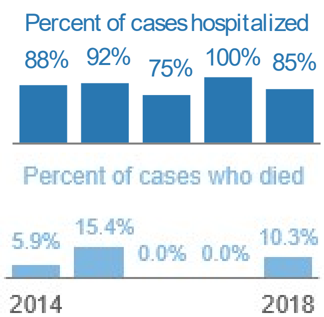
Rates are by county of residence for infections acquired in Florida (33 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

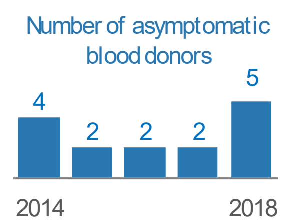
The percentage of confirmed cases increased in 2018, though it can vary by year.



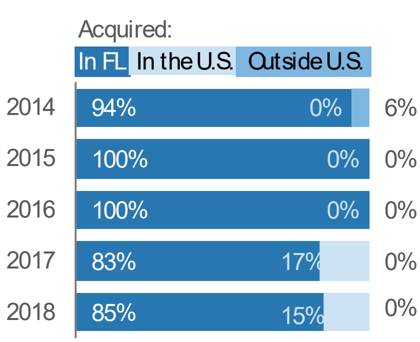
The majority of cases are hospitalized; deaths do occur.



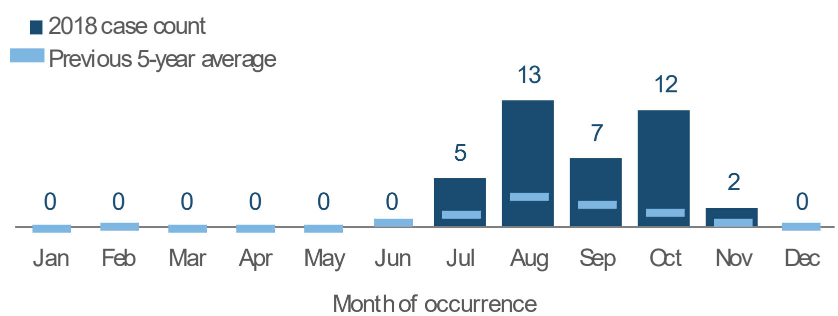
Five asymptomatic WNV-positive blood donors were identified in 2018. One blood donor had an unknown county of exposure, and two blood donors were experiencing homelessness. While blood donors do not meet case criteria if no symptoms are reported, they are still indicative of WNV activity occurring in the area and can be used to meet criteria for issuing mosquito-borne illness advisories and alerts if the county of exposure is known.



Most cases are acquired in Florida. In 2018, six cases were imported from other U.S. states.



West Nile virus disease has a strong seasonal pattern with cases primarily occurring July to November. In 2018, the largest number of cases were reported in August and October.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status and month of occurrence.

Zika Virus Disease and Infection

Key Points

Zika emerged in Brazil in 2015, followed by local transmission throughout the Americas and the Caribbean. In 2016, over 1,400 cases were reported in Florida, with most being travel-associated; however, 285 cases were locally acquired. An additional 15 locally acquired cases were identified in 2017, but their exposure was attributed to 2016, bringing the total number of locally acquired cases in 2016 to 300. Active transmission of Zika virus was identified in four areas in Miami-Dade County in 2016.

Unlike dengue fever, infection with Zika virus leads to lifetime immunity, which is believed to be the primary reason for the substantial decrease in incidence in endemic countries and subsequent decreased risk for introduction in non-endemic areas such as Florida. As a result, only two locally acquired cases were identified with symptom onset in September 2017.

Unlike other diseases and conditions in this report, non-Florida residents are included in Zika case counts. Non-Florida residents made up about 7% of cases reported from 2016 to 2017, compared to 18% of cases in 2018. Only 21% of cases were pregnant in 2016, compared to much larger proportions in 2017 (49%) and 2018 (71%). This increase was primarily related to increased availability of testing for asymptomatic pregnant women, as well as the possibility of prolonged IgM antibody detection of two years or longer which may have identified past exposure to Zika virus versus a recent infection.

Disease Facts

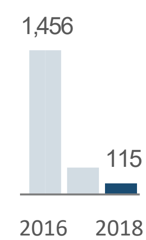
Caused by Zika virus

Illness is frequently asymptomatic; common symptoms include fever, rash, headache, joint pain, conjunctivitis and muscle pain; microcephaly and other severe birth defects may occur when mother is infected during pregnancy; post-infection Guillain-Barré syndrome

Transmitted via bite of infective mosquito, blood transfusions, sex with infected partner or from mother to child during pregnancy

Under surveillance to identify individual cases and implement control measures to prevent local transmission, monitor incidence over time, estimate burden of illness, identify infants born to infected mothers for follow-up

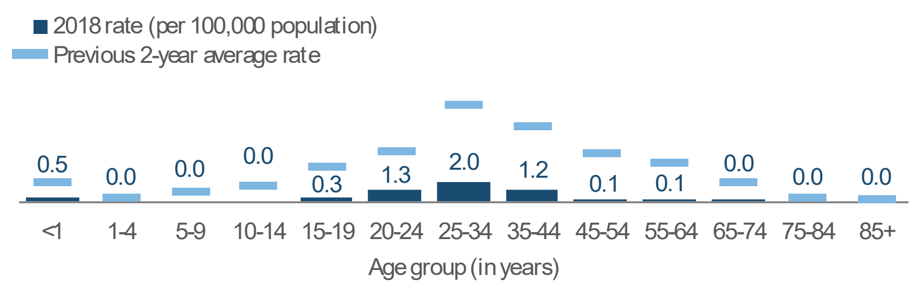
The incidence of Zika virus disease and infection has decreased drastically since 2016.



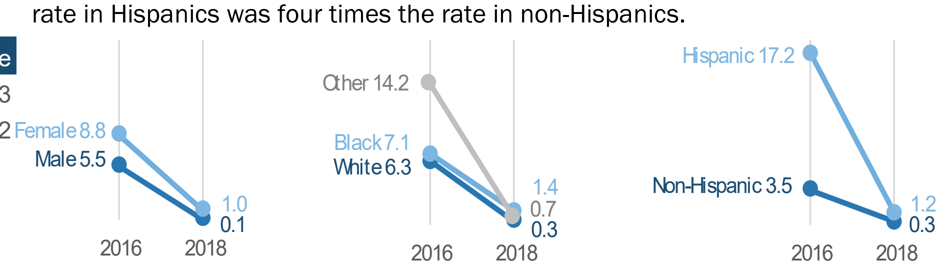
Disease Trends

Summary			
Number of cases			115
Rate (per 100,000 population)			0.5
Change from 2-year average incidence			-87.2%
Age (in Years)			
Mean			32
Median			32
Min-max			0 - 71
Gender	**Number**	**(Percent)**	**Rate**
Female	107	(93.0)	1.0
Male	8	(7.0)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	56	(49.6)	0.3
Black	51	(44.3)	1.4
Other	8	(6.1)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	52	(45.2)	0.3
Hispanic	63	(54.8)	1.2
Unknown ethnicity	0		

The rate of Zika virus disease and infection (per 100,000 population) is highest in adults 25 to 34 years old. Due to the possibility of adverse pregnancy and fetal outcomes associated with Zika virus infection during pregnancy, testing is focused on pregnant women; however, symptomatic individuals also meet testing criteria.



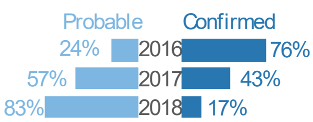
The rates of Zika virus disease and infection (per 100,000 population) vary by gender, race and ethnicity. In 2018, the rate in females was 10 times the rate in males, the rate in blacks was more than three times the rate in whites and the rate in Hispanics was four times the rate in non-Hispanics.



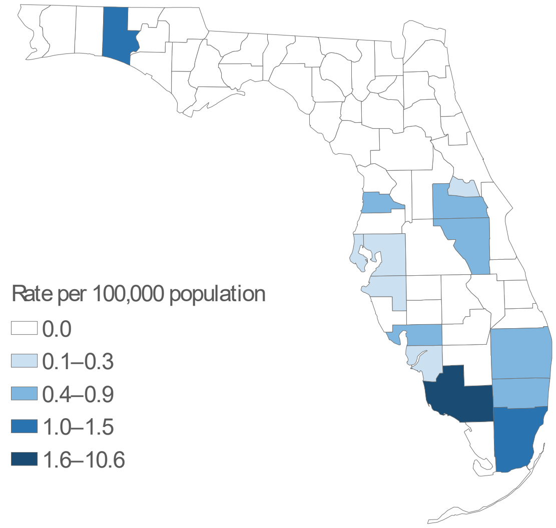
Zika Virus Disease and Infection

Summary	Number
Number of cases	115
Case Classification	**Number (Percent)**
Confirmed	19 (16.5)
Probable	96 (83.5)
Type	**Number (Percent)**
Non-Congenital	114 (99.1)
Congenital	1 (0.9)
Residence Status	**Number (Percent)**
Florida resident	94 (81.7)
Non-Florida resident	21 (18.3)
Special Populations	**Number (Percent)**
Pregnant women	82 (71.3)
Symptom Status	**Number (Percent)**
Symptomatic	15 (13.0)
Asymptomatic	99 (86.1)
Unknown	1 (0.9)

Very few cases met confirmatory case criteria in 2018; positive results were primarily for antibody testing rather than detection of Zika virus.



Imported Zika cases were more commonly reported in central and south Florida with the highest rates (per 100,000 population) concentrated in south Florida counties. Two locally acquired cases were identified in Broward (unknown exposure year) and Miami-Dade (laboratory exposure) counties in 2018.



Rates are by county of residence, regardless of where infection was acquired (115 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

Cuba is one of the top five countries where infections were acquired in both 2017 and 2018. In 2018, symptomatic cases were only reported from Cuba. The last symptomatic case with laboratory confirmation was in December 2018.

Top 5 exposure locations for 2018

Country	Number	Percent
Haiti	43	37%
Cuba	22	19%
Venezuela	16	14%
Honduras	8	7%
Dominican Republic	4	3%

Top 5 exposure locations for 2017

Country	Number	Percent
Cuba	90	32%
Haiti	41	15%
Venezuela	18	6%
Dominican Republic	10	4%
Jamaica	9	3%

Note: In 2017, the Cuba category included cases with exposure in Cuba only (87) and cases with exposure in Cuba and another country (3). In 2018, the Cuba category included cases with exposure in Cuba only.

In 2018, one locally acquired case in an asymptomatic person was identified; however, the year of exposure was unknown as antibodies against Zika virus can be detected for years in some people. In addition, one laboratory exposure by needlestick was reported in an employee at a research laboratory.

	2017		2018	
Imported Status	Number	Percent	Number	Percent
Travel-related	225	81%	111	97%
Undetermined (exposed in 2016)	35	13%	2	2%
Locally acquired (exposed in 2016)	15	5%	0	0%
Locally acquired (exposed in 2017)	2	1%	0	0%
Locally acquired (unknown exposure year)	0	0%	1	1%
Locally acquired (laboratory exposure)	0	0%	1	1%

Note: The undetermined category includes individuals who spent time in Miami-Dade County where local transmission was ongoing in 2016 and who spent time in countries or territories with widespread Zika virus transmission. The exact location of exposure was not confirmed for these individuals.

Due to the possibility of adverse pregnancy and fetal outcomes associated with Zika virus infection during pregnancy, outreach to pregnant women and their providers was a high priority for the Department. In 2018, one congenital Zika syndrome (CZS) case was reported for an infant whose mother was exposed to Zika virus during pregnancy. From 2016 to 2017, seven CZS cases and two healthy-appearing infants with Zika virus infection were reported. Six sexual transmission cases were reported from 2016 to 2017; however, none were reported in 2018.

See Appendix III: Report Terminology for explanations of case classification, outcome and month of occurrence.

Narratives for Uncommon Diseases and Conditions

Section 2

Section 2: Narratives for Uncommon Diseases/Conditions

Amebic Infection

Amebic infections are caused by free-living amebas, including *Acanthamoeba* species, *Balamuthia mandrillaris* and *Naegleria fowleri*. These free-living amebas are ubiquitous in the environment, most commonly found in soil and freshwater, but rarely cause disease in humans.

Primary amebic meningoencephalitis (PAM) is caused by *Naegleria fowleri*. The ameba enters through the nose and travels to the brain. Generally, exposure to the ameba occurs when individuals swim or dive in warm fresh water or use contaminated water for sinus irrigation. PAM is a rare disease with a high mortality rate.

Granulomatous amebic encephalitis (GAE) is caused by *Balamuthia mandrillaris* and *Acanthamoeba* species. The ameba enters through a break in the skin or through the nose and travels to the spinal cord and brain. This illness is most common in immunocompromised people, children and older adults. GAE is a rare disease with a high mortality rate.

Four amebic infection cases (three *Balamuthia mandrillaris* infections, one *Acanthamoeba* species infection) were reported in Florida in 2018. The most common symptoms reported among cases were headache (four cases) and confusion (three cases).

Disease Facts

Caused by *Acanthomoeba* species, *Balamuthia mandrillaris*, *Naegleria fowleri* free-living amebas

Illness varies by pathogen, causing meningoencephalitis or encephalitis, disseminated disease (affecting multiple organ systems) or cutaneous disease; clinical presentations include a wide range of signs and symptoms; infections often lead to death

Transmitted via direct contact with ameba-containing water or soil that enters the body through the nose or a break in the skin

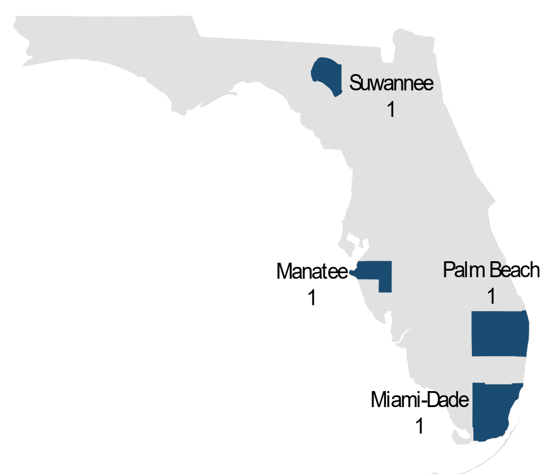
Under surveillance to monitor incidence and trends, target areas of incidence for prevention education

Amebic infection cases are rare, with typically no more than one case reported each year. Four cases were reported in 2018; all occurred in adult males and more commonly in non-Hispanics. All cases were hospitalized and resulted in death. All cases were sporadic and acquired in Florida.

Summary	
Number of cases in 2018	4
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	54
Median	52
Min-max	44 - 66
Gender	**Number**
Female	0
Male	4
Unknown gender	0
Race	**Number**
White	2
Black	2
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	3
Hispanic	1
Unknown ethnicity	0

Case Classification	Number
Confirmed	4
Probable	0
Outcome	**Number**
Interviewed	0
Hospitalized	4
Died	4
Outbreak Status	**Number**
Sporadic	4
Outbreak-associated	0
Outbreak status unknown	0
State Where Exposed	**Number**
Florida	4

Amebic infection cases were identified in residents of four Florida counties in 2018; each county had one case. No infections were known to have been acquired outside of Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Anaplasmosis

Anaplasmosis was previously known as human granulocytic ehrlichiosis (HGE), but was later renamed human granulocytic anaplasmosis (HGA) when the bacterium genus was changed from *Ehrlichia* to *Anaplasma*. Anaplasmosis is transmitted to humans by tick bites primarily from *Ixodes scapularis*, the black-legged tick, and *Ixodes pacificus*, the western black-legged tick. Co-infection with other pathogens found in these vectors is possible. Unlike ehrlichiosis, most anaplasmosis cases reported in Florida are exposed in the northeastern and midwestern U.S. Although uncommon, *Anaplasma* infections can be acquired in Florida.

Disease Facts

- **Caused** by *Anaplasma phagocytophilum* bacteria
- **Illness** includes fever, headache, chills, malaise and muscle aches; more severe infections can occur in elderly and immunocompromised people
- **Transmitted** via bite of infective tick
- **Under surveillance** to monitor incidence over time, estimate burden of illness and target areas of high incidence for prevention education

Anaplasmosis incidence in Florida more than doubled in 2018 (19 cases) compared to 2017 (nine cases), driven largely by exposures in New York and Maine, which is consistent with increasing activity reported nationally. Exposure location was unknown for one case; all other cases were imported. Nationally, cases are most common in males and adults >40 years old. In Florida, males represented 63% of all cases in 2018. Only two (11%) of Florida's 19 cases were <40 years old and only three cases (16%) were <60 years old. Symptom onset dates ranged from May to October 2018, consistent with peak activity nationally. One case died; however, the primary cause of death was attributed to a chronic co-morbidity with anaplasmosis considered a contributing factor.

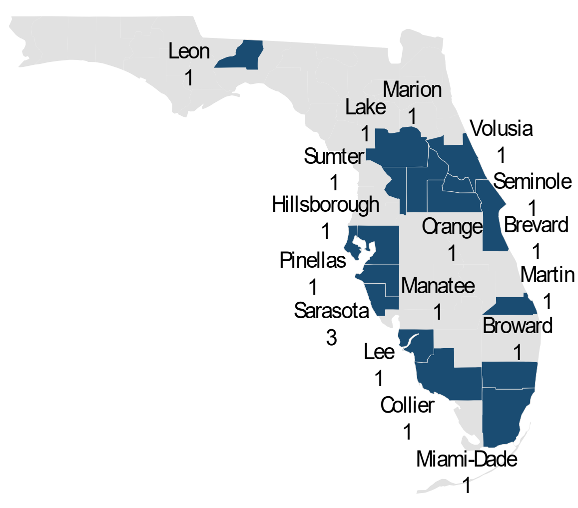
Case counts from this report may differ from those found in other vector-borne disease reports as different criteria are used to assemble the data.

In recent years, less than 10 anaplasmosis cases were reported each year; 19 cases were reported in 2018. Cases occurred in adults and more commonly in males. All 2018 cases were in whites and primarily non-Hispanics. All cases were sporadic.

Summary	
Number of cases in 2018	19
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	65
Median	69
Min-max	18 - 90
Gender	**Number**
Female	7
Male	12
Unknown gender	0
Race	**Number**
White	19
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	17
Hispanic	1
Unknown ethnicity	1

Case Classification	Number
Confirmed	19
Probable	0
Outcome	**Number**
Interviewed	15
Hospitalized	10
Died	1
Outbreak Status	**Number**
Sporadic	19
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
New York	7
Maine	4
Massachusetts	2
Connecticut	1
Minnesota	1
New Hampshire	1
Wisconsin	1
Massachusetts or Maine	1
Unknown	1

Imported anaplasmosis cases were identified in residents of 17 Florida counties in 2018. Sarasota County was the only one to have three cases identified in residents. All infections with known exposure location were acquired in other U.S. states.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Arsenic Poisoning

Arsenic poisoning became a reportable condition in Florida in November 2008. Arsenic is a naturally occurring element that is widely distributed in the environment. It is usually found in conjunction with other elements like oxygen, chlorine and sulfur (inorganic arsenic). Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Most arsenic-induced toxicity in humans is due to exposure to inorganic arsenic. Common sources of potential inorganic arsenic exposure are chromated copper arsenate (CCA)-treated wood, tobacco smoke, certain agricultural pesticides and some homeopathic and naturopathic preparations and folk remedies. In addition, inorganic arsenic is a naturally occurring contaminant found in water in certain areas of Florida, affecting private drinking wells (which are not regulated).

Disease Facts

- **Caused** by inorganic arsenic
- **Illness** can include severe gastrointestinal signs and symptoms (e.g., vomiting, abdominal pain and diarrhea) which may lead rapidly to dehydration and shock, dysrhythmias (prolonged QT, T-wave changes), altered mental status, and multisystem organ failure may follow, which can ultimately result in death
- **Transmitted** via ingestion of arsenic or inhalation of air containing arsenic
- **Under surveillance** to identify sources of arsenic exposure that are of public health concern (e.g., water source, workplace exposure, homeopathic medicines), prevent further exposure

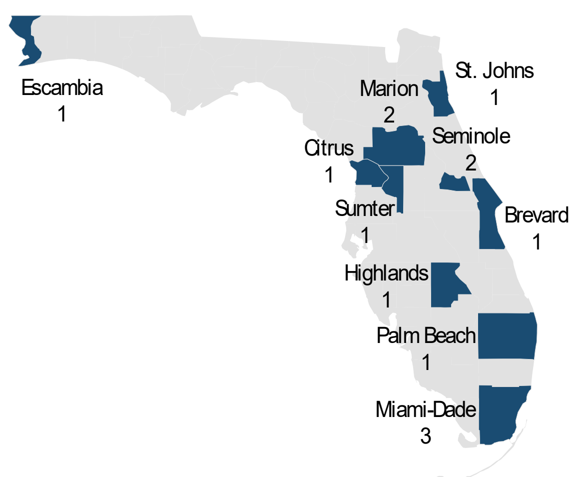
Arsenic poisoning incidence remained the same in 2018 (14 cases) compared to 2017 (14 cases). Most cases occurred in adults in their 60s and 70s. Arsenic poisoning cases occur year-round at low levels. Cumulatively over the past five years, there has been a small peak in June, though in 2018 activity peaked slightly in July with three cases. All cases reported in 2018 were sporadic. Nine cases had known exposures, including consumption of fish or shellfish (five cases), consumption of well/cistern water (one case), consumption of homeopathic medicines (one case), contact with CCA-treated wood (one case) and occupational contact (one case). For the remaining five cases, the source of exposure was unknown.

Between 2 and 21 arsenic poisoning cases have been identified each year from 2014 to 2018. Cases occurred in children and adults and more commonly in males. Most 2018 cases were in non-Hispanic whites. All cases were sporadic and most were acquired in Florida.

Summary	
Number of cases in 2018	14
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	53
Median	65
Min-max	4 - 77
Gender	**Number**
Female	6
Male	8
Unknown gender	0
Race	**Number**
White	13
Black	0
Other	0
Unknown race	1
Ethnicity	**Number**
Non-Hispanic	10
Hispanic	2
Unknown ethnicity	2

Case Classification	Number
Confirmed	14
Probable	0
Outcome	**Number**
Interviewed	12
Hospitalized	0
Died	0
Outbreak Status	**Number**
Sporadic	14
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	13
Unknown	1

Arsenic poisoning cases occurred in residents of 10 Florida counties in 2018. Only three counties identified more than one case (Miami-Dade [three cases], Marion [two cases] and Seminole [two cases]).



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Babesiosis

Babesiosis became nationally notifiable in 2011 and became reportable in Florida in October 2016. Most U.S. reported cases have been *B. microti* infections acquired in parts of the northeastern and north central regions. Sporadic U.S. cases may be caused by other *Babesia* species, such as *B. duncani* and related organisms in several western states, as well as *B. divergens*-like variant M01 in various states. Zoonotic *Babesia* species have also been reported in Europe, Africa, Japan, Taiwan, India and Mexico. Some infections may be asymptomatic and can lead to transfusion-associated cases in both endemic and non-endemic areas like Florida.

Disease Facts

Caused by *Babesia* parasites

Illness includes hemolytic anemia and influenza-like symptoms (e.g., fever, chills, body aches, weakness, fatigue); complications can include thrombocytopenia, disseminated intravascular coagulation, hemodynamic instability, acute respiratory distress, myocardial infarction, renal failure, hepatic dysfunction, altered mental status, death; can be asymptomatic

Transmitted via bite of infective tick; less commonly by blood transfusion and rare congenital infections

Under surveillance to monitor incidence over time, estimate burden of illness and target areas of high incidence for prevention education

B. microti circulates between *Ixodes scapularis* (blacklegged tick) and animal reservoir hosts, primarily small mammals like *Peromyscus leucopus* (white-footed mouse). In regions where this enzootic cycle is shared by the etiologic agents of Lyme disease (*Borrelia burgdorferi*) and human anaplasmosis (*Anaplasma phagocytophilum*), co-infections can occur. Babesiosis appears to have increasing case numbers and an expanding endemic range in some areas, though U.S. incidence and the geographic extent of *B. microti* and novel *Babesia* agents are unknown. Those at greater risk for severe infection include immunosuppressed, asplenic and older persons as well as those with serious chronic illnesses.

Florida's incidence doubled in 2018 compared to 2017 due to increased activity nationally and better provider awareness of updated reporting requirements. In 2018, most cases (84%) were >60 years old. The single death was in a case >60 years old with multiple risk factors for severe infection including immunosuppression, asplenia and other co-morbidities. Preliminary genetic sequencing data suggest a *Babesia* species associated with deer may have been involved. Two cases were asymptomatic blood donors (donated blood in 2017, case reported in 2018). Neither case donation resulted in recipient infection. Three cases were co-infected with *B. burgdorferi*.

No cases were reported in 2016. Nineteen cases were identified in 2018, twice that reported in 2017 (nine). Cases occurred in white adults and more commonly in males and non-Hispanics. Eight cases were hospitalized; one death occurred.

Summary	
Number of cases in 2018	19
3-year trend (2016 to 2018)	

Age (in Years)	
Mean	69
Median	68
Min-max	46 - 91

Gender	Number
Female	6
Male	13
Unknown gender	0

Race	Number
White	19
Black	0
Other	0
Unknown race	0

Ethnicity	Number
Non-Hispanic	17
Hispanic	1
Unknown ethnicity	1

Case Classification	Number
Confirmed	17
Probable	2

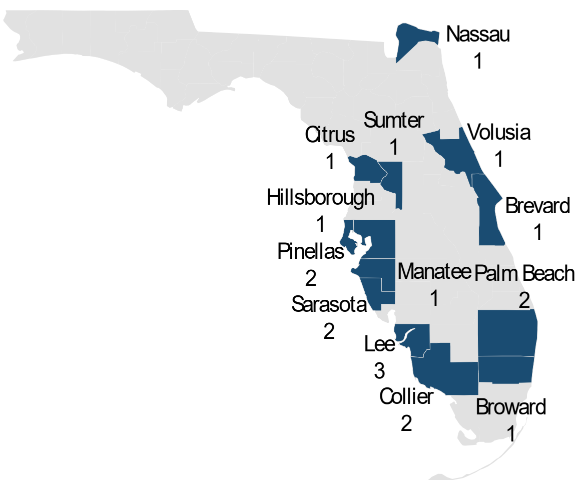
Outcome	Number
Interviewed	17
Hospitalized	8
Died	1

Outbreak Status	Number
Sporadic	19
Outbreak-associated	0
Outbreak status unknown	0

Location Where Exposed	Number
New York	5
Massachusetts	4
Rhode Island	3
Connecticut	2
Maine	1
Pennsylvania	1
Maine or Rhode Island	1
Connecticut, Maine, or Pennsylvania	1
Unknown	1

See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Babesiosis cases occurred in residents of 13 Florida counties in 2018. Each of the 13 counties had one or two cases identified, except for Lee County with three cases. One infection had an unknown exposure location; the remaining 18 infections were all acquired in other U.S. states.



Brucellosis

Human infections in Florida are most commonly associated with exposure to feral swine infected with *B. suis*. Dogs and domestic livestock may also be infected with *B. suis*. Although dogs and other animals, such as dolphins, may be infected with their own *Brucella* species, human illness is not commonly associated with those species. Outside the U.S., unpasteurized milk products from goats, sheep and cattle infected with *B. melitensis* and *B. abortus* are important sources of human infections. *Brucella* cattle vaccine RB51 infections have also been associated with consumption of raw milk. Laboratorians can be at risk for exposure to *Brucella* species while working with human or animal cultures.

Disease Facts

Caused by *Brucella* bacteria

Illness includes fever, sweats, headaches, back pain, weight loss and weakness; long-lasting or chronic symptoms can include recurrent fevers, joint pain and fatigue; relapses can occur

Transmitted primarily via ingestion of raw milk products or less commonly undercooked meat, inhalation of bacteria or skin/mucous membrane contact with infected animals

Under surveillance to target areas of high risk for prevention education, identify potentially contaminated products (e.g., food, transfusion, organ transplant products), provide prophylaxis to prevent laboratory exposure-related infections, identify and respond to a bioterrorism incident

Eleven (85%) of the 13 brucellosis cases in 2018 had reference laboratory-confirmed *Brucella*-positive culture (nine), PCR (one) or serology (one) results. The remaining two cases had positive serology results at commercial laboratories but neither required confirmatory testing at a reference laboratory. Most *Brucella* infections were caused by *B. suis* (seven cases), one case was caused by *B. abortus* and five cases by undetermined species. Of the 12 cases with known exposures, the most commonly reported were hunting feral swine or butchering pigs (seven cases), consuming raw milk products (four), living on a farm (three), hunting without specifying feral swine contact (one) and eating undercooked pork (one). Chronic infection is not uncommon in untreated brucellosis cases. The *B. abortus case* was >80 years old and reported drinking raw milk decades ago when the disease was still common in U.S. cattle, but had not consumed these products in recent decades.

While cases in non-Florida residents are not included in counts in this report, two brucellosis cases with reference laboratory-confirmed positive cultures were identified in non-Florida residents while traveling in Florida in 2018 (one *B. suis* infection in an Alabama resident [exposure: unknown], one *B. melitensis* infection in a Bolivia resident [suspected exposure: drinking or eating raw milk products]). The 11 *Brucella* culture isolates from both Florida and non-Florida residents resulted in at least 65 potential exposures in laboratory or surgical settings, including 12 laboratorians in other states. Ten of those exposures were caused by non-Florida resident isolates.

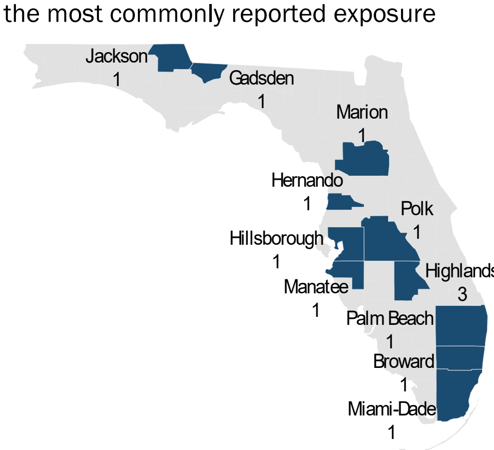
The number of brucellosis cases reported varies by year with no clear trend. Cases occurred in adults and more commonly in males, whites and non-Hispanics. Nine cases were hospitalized; no deaths occurred.

Summary	
Number of cases in 2018	13
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	60
Median	60
Min-max	25 - 91
Gender	**Number**
Female	3
Male	10
Unknown gender	0
Race	**Number**
White	10
Black	3
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	9
Hispanic	4
Unknown ethnicity	0

Case Classification	Number
Confirmed	9
Probable	4
Outcome	**Number**
Interviewed	10
Hospitalized	9
Died	0
Outbreak Status	**Number**
Sporadic	13
Outbreak-associated	0
Outbreak status unknow	0
Location Where Exposed	**Number**
Florida	10
Mexico	1
Florida, Cuba or Mexico	1
Unknown	1

See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Brucellosis cases occurred in residents of 11 Florida counties in 2018. Highlands County was the only one to have three cases identified in residents. Most infections were acquired in Florida; contact with feral swine was the most commonly reported exposure risk.



Chikungunya Fever

Chikungunya virus is most often spread to people in endemic areas by *Aedes aegypti* and *Aedes albopictus* mosquitoes (the same mosquitoes that transmit dengue and Zika viruses). The first autochthonous transmission of chikungunya virus in the Americas was reported on the island of St. Martin in December 2013. Since then, local transmission has been identified in countries throughout the Caribbean and the Americas. In 2014, 442 cases were identified in Florida residents. Florida was the only continental U.S. state to report local cases of chikungunya fever, with 12 cases reported. No locally acquired cases have been identified since 2014.

Disease Facts

- **Caused** by chikungunya virus
- **Illness** is acute febrile with joint and muscle pain, headache, joint swelling and rash; joint pain can persist for months to years and relapse can occur
- **Transmitted** via bite of infective mosquito, rarely by blood transfusion or organ transplant
- **Under surveillance** to identify individual cases and implement control measures to prevent endemicity, monitor incidence over time, estimate burden of illness

Extensive spread in Central and South America and the Caribbean in 2014 resulted in immunity for many people in those areas. Infection with chikungunya virus is believed to lead to lifetime immunity, which is considered to be the primary reason for the substantial decrease in incidence in endemic countries and subsequent decreased risk for introduction in non-endemic areas such as Florida. Overall incidence in Florida decreased dramatically in 2015 (121 cases) and 2016 (10 cases), but has remained relatively stable since (2017: four cases; 2018: six cases).

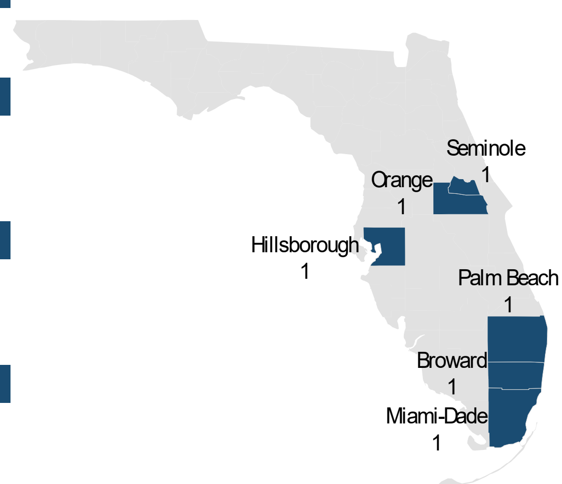
Case counts from this report may differ from those found in other vector-borne disease reports as different criteria are used to assemble the data. One case reported in 2018 was initially identified in 2017.

Over 400 chikungunya fever cases were identified in 2014; activity has decreased dramatically since. Six cases occurred in 2018 in adults who were infected in India (three cases), Brazil (two cases) and Kenya (one case). Half of the cases were confirmed.

Summary	
Number of cases in 2018	6
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	44
Median	39
Min-max	26 - 80
Gender	**Number**
Female	3
Male	3
Unknown gender	0
Race	**Number**
White	2
Black	0
Other	3
Unknown race	1
Ethnicity	**Number**
Non-Hispanic	4
Hispanic	1
Unknown ethnicity	1

Case Classification	Number
Confirmed	3
Probable	3
Outcome	**Number**
Interviewed	5
Hospitalized	1
Died	0
Outbreak Status	**Number**
Sporadic	6
Outbreak-associated	0
Outbreak status unknown	0
Country Where Exposed	**Number**
India	3
Brazil	2
Kenya	1

Imported chikungunya cases occurred in residents of six Florida counties in 2018. Each county had one case identified. All infections were acquired outside the U.S.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Hansen's Disease (Leprosy)

With early diagnosis and treatment, Hansen's disease can be cured. However, if left untreated, the nerve damage can be permanent. Leprosy was once feared as a highly contagious and devastating disease. However, it is now recognized that the disease is not spread through casual contact, and most people (about 95%) are resistant to infection. For those who do become infected, effective treatment is available. Historically, the disease was not thought to be endemic in Florida. More recently in Florida and other parts of the southern U.S., infections have been identified in both people and armadillos believed to have been exposed in the region.

Disease Facts

Caused by *Mycobacterium leprae* bacteria

Illness mainly affects the skin (e.g., discolored patches of skin, nodules under the skin, flaky or dry skin, loss of hair in eyebrows), nerves (e.g., numbness in affected areas, vision impairment) and mucous membranes (e.g., stuffy nose, nosebleeds)

Transmission thought to be person to person via respiratory droplets following extended close contact with an infected person (still not clearly defined, but it is hard to spread)

Under surveillance to facilitate early diagnosis and appropriate treatment by an expert to minimize permanent nerve damage and prevent further transmission

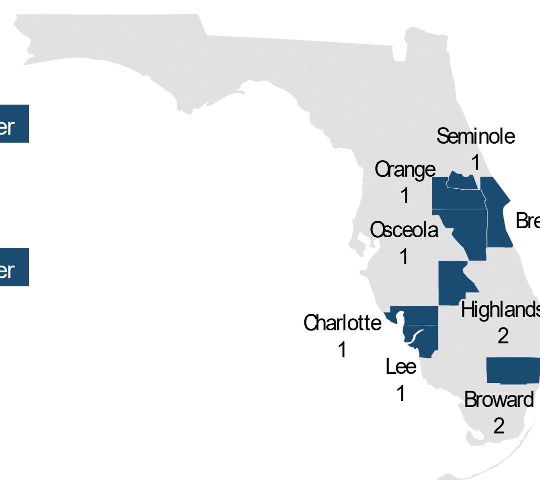
Due to the long incubation period for Hansen's disease and a mobile population, location of exposure is often difficult to identify. However, five cases reported living in Florida for at least 20 years or all of their lives and were reported as infections acquired in Florida. Of these five cases, two reported a history of living in other states and three reported only living in Florida during their lifetimes. Only two cases reported direct contact with armadillos, including one case who reported eating armadillo meat in Argentina. The median age of cases was 58 years old; all but four cases (78%) were ≥50 years old. Thirteen cases (72%) were diagnosed within one year of symptom onset, two cases (11%) within two years, two cases (11%) within three years and one case (6%) more than five years after symptom onset.

The number of Hansen's disease cases ranges from 10 to 30 cases each year; 18 cases were reported in 2018. Cases occurred in adults and more commonly in females. Most cases were in non-Hispanic whites. No cases were known to be outbreak-associated; no cases were hospitalized or died.

Summary	
Number of cases in 2018	18
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	60
Median	58
Min-max	40 - 82
Gender	**Number**
Female	10
Male	8
Unknown gender	0
Race	**Number**
White	17
Black	0
Other	1
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	15
Hispanic	3
Unknown ethnicity	0

Case Classification	Number
Confirmed	18
Probable	0
Outcome	**Number**
Interviewed	16
Hospitalized	0
Died	0
Outbreak Status	**Number**
Sporadic	16
Outbreak-associated	0
Outbreak status unknown	2
Location Where Exposed	**Number**
Unknown	11
Florida	5
Colombia	1
New York	1

Infected people primarily resided in counties in the central and southern part of the state, with infections attributed to exposure in Florida located in the central part of the state. It is unclear if this distribution is due to enhanced regional training and outreach efforts, population demographics or other factors.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Hepatitis D

The hepatitis D virus, also known as hepatitis delta, is an incomplete virus and cannot replicate in the absence of the hepatitis B virus. Infection with hepatitis D can only occur in people experiencing hepatitis B infection. Hepatitis D can be acquired at the same time as hepatitis B (co-infection) or be acquired by people already living with chronic hepatitis B (superinfection). Hepatitis D co-infection is usually indistinguishable from hepatitis B alone, but a superinfection can convert an asymptomatic or otherwise mild chronic hepatitis B infection into a more severe infection. Similarly to hepatitis B, hepatitis D can occur as an acute infection or can persist as a chronic infection. Although there is no vaccine for hepatitis D, the hepatitis B vaccine can help protect against hepatitis D infection.

Disease Facts

Caused by hepatitis D virus (HDV) in the presence of hepatitis B virus

Illness includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort and jaundice (can be asymptomatic)

Transmitted via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks)

Under surveillance to prevent HDV transmission, identify and prevent outbreaks, improve allocation of resources for treatment services, assist in evaluating the impact of public health interventions, monitor effectiveness of hepatitis B immunization programs

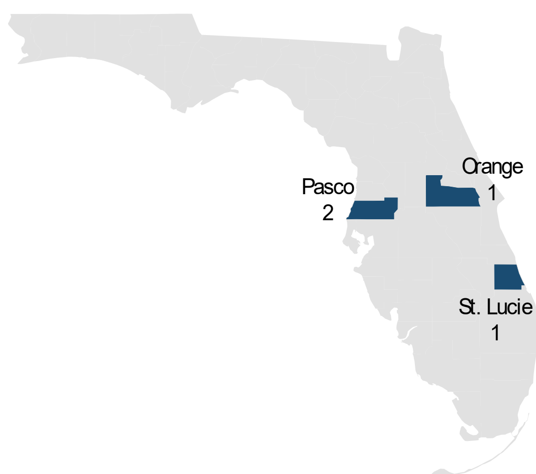
Hepatitis D is uncommon in the U.S., and national case counts may be an underestimation as not all states and territories report hepatitis D infections to the Centers for Disease Control and Prevention.

The number of hepatitis D cases reported each year has increased slightly, but remained low in 2018 with only four cases reported. Cases occurred in adults and more commonly in males. All 2018 cases were in non-Hispanic whites. All cases were sporadic. Most cases were hospitalized; no deaths occurred.

Summary	
Number of cases in 2018	4
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	56
Median	59
Min-max	40 - 66
Gender	**Number**
Female	1
Male	3
Unknown gender	0
Race	**Number**
White	4
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	4
Hispanic	0
Unknown ethnicity	0

Case Classification	Number
Confirmed	4
Probable	0
Outcome	**Number**
Interviewed	2
Hospitalized	3
Died	0
Outbreak Status	**Number**
Sporadic	4
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	3
Unknown	1

Hepatitis D cases occurred in residents of three Florida counties in 2018. Pasco County had two cases; the other two counties had one case each. No infections were known to be acquired outside of Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Hepatitis E

Hepatitis E is usually self-limiting, but some cases may develop into acute liver failure, particularly among pregnant woman and persons with preexisting liver disease. HEV may also cause chronic infection, primarily in immunocompromised persons. Although rare in developed countries, individual cases and outbreaks have been linked to exposure to pigs, consumption of undercooked pork, wild game, or shellfish; and blood transfusions. Most locally acquired infections report no specific risk factors. Surveillance for hepatitis E worldwide is important because it is a significant cause of morbidity and mortality with an estimated 20 million HEV infections and tens of thousands of deaths each year. Pregnant women with hepatitis E, particularly those in the second or third trimester, are at an increased risk of acute liver failure, fetal loss and death.

Disease Facts

- **Caused** by hepatitis E virus (HEV)
- **Illness** includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort and jaundice (can be asymptomatic)
- **Transmitted** via fecal-oral route, including foodborne and waterborne
- **Under surveillance** to monitor incidence and trends

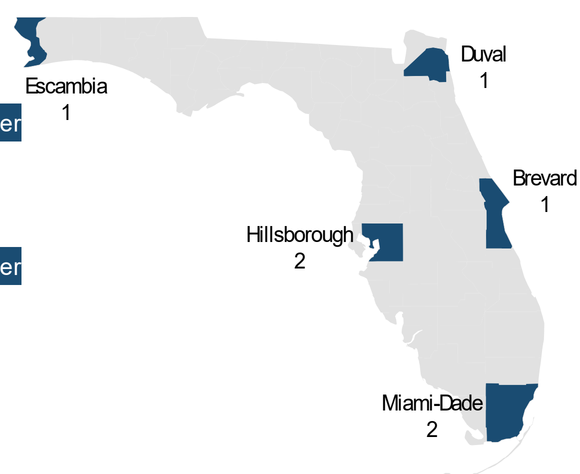
In 2018, five (71%) cases reported travel outside the U.S. during their exposure period. No common risk factors for infection were identified among the 2018 cases.

Less than 10 hepatitis E cases are reported each year; seven cases were reported in 2018. All cases occurred in adults and most commonly in females. Most cases were in whites and non-Hispanics. All cases were sporadic. All 2018 cases were hospitalized; no deaths occurred.

Summary	
Number of cases in 2018	7
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	51
Median	57
Min-max	22 - 67
Gender	**Number**
Female	5
Male	2
Unknown gender	0
Race	**Number**
White	4
Black	0
Other	2
Unknown race	1
Ethnicity	**Number**
Non-Hispanic	4
Hispanic	2
Unknown ethnicity	1

Case Classification	Number
Confirmed	7
Probable	0
Outcome	**Number**
Interviewed	6
Hospitalized	7
Died	0
Outbreak Status	**Number**
Sporadic	5
Outbreak-associated	0
Outbreak status unknown	2
Location Where Exposed	**Number**
Costa Rica	1
Florida	1
Portugal	1
Florida or India	1
Florida or Indiana	1
Florida or Italy	1
Florida, Korea or Vietnam	1

Hepatitis E cases occurred in residents of five Florida counties in 2018. Hillsborough and Miami-Dade counties each had two cases; the remaining three counties had one case each. A definitive exposure location was not able to be determined for half of the infections.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Leptospirosis

Leptospirosis is cased by spirochete bacteria in the genus *Leptospira*. The bacteria can be present in the urine of infected animals such as rodents, dogs, livestock, pigs, horses and wildlife. Most human exposures are thought to occur through ingestion of urine-contaminated water or food as well as by direct contact of urine-contaminated water with mucous membranes or wounds.

Activities that can result in swallowing of untreated fresh water, or that can lead to skin abrasions with water or soil contamination to wounds, can significantly increase risk of exposure. Adventure races have resulted in cases of leptospirosis in Florida in the past.

Disease Facts

- **Caused** by *Leptospira* bacteria
- **Illness** includes abrupt onset of fever, headache, muscle aches, vomiting or diarrhea; severe presentations may include kidney failure, liver failure, pulmonary hemorrhage or meningitis; may be asymptomatic
- **Transmitted** indirectly through ingestion or contact with contaminated water, soil or food; less frequently, animal to person by direct contact with urine or other body fluids from an infected animal; rarely by animal bites and breastfeeding
- **Under surveillance** to monitor incidence over time, estimate burden of illness, identify activities and groups at increased risk for exposure to target prevention education

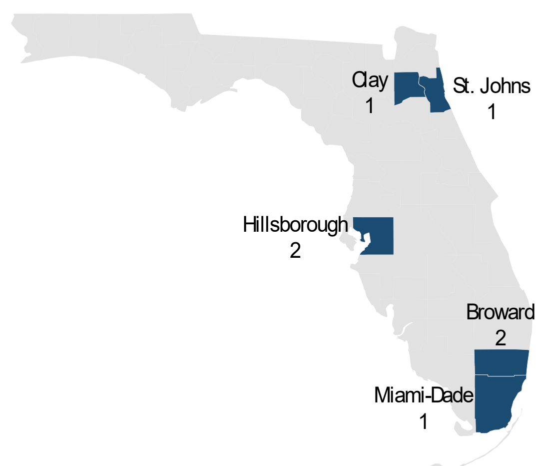
Of the four leptospirosis cases imported from other countries in 2018, two were attributed to an outbreak linked to freshwater exposure in northern Israel while the other two were associated with tubing or swimming in fresh water in Jamaica or Panama. Three leptospirosis cases were acquired in Florida in 2018 (two cases reported exposures in north Florida, one case spent time in both north and south Florida). Of these three cases, one case reported occupational exposure to a pond while another case frequently swam in a creek near their home and also reported animal contact through hunting and cleaning a rodent cage. The last case was experiencing homelessness; a detailed exposure history could not be obtained.

Less than 10 leptospirosis cases are reported each year. Cases occurred in adolescents and adults and more commonly in males. Cases were primarily in whites and more commonly in non-Hispanics. Most cases were sporadic. Most cases were hospitalized; no deaths occurred.

Summary	
Number of cases in 2018	7
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	31
Median	30
Min-max	13 - 56
Gender	**Number**
Female	2
Male	5
Unknown gender	0
Race	**Number**
White	6
Black	0
Other	0
Unknown race	1
Ethnicity	**Number**
Non-Hispanic	4
Hispanic	2
Unknown ethnicity	1

Case Classification	Number
Confirmed	3
Probable	4
Outcome	**Number**
Interviewed	5
Hospitalized	4
Died	0
Outbreak Status	**Number**
Sporadic	5
Outbreak-associated	2
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	3
Israel	2
Jamaica	1
Panama	1

Leptospirosis cases occurred in residents of five Florida counties in 2018. Broward and Hillsborough counties each had two cases; the remaining three counties had one case each. More infections were acquired in other countries.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Measles (Rubeola)

Measles, also known as rubeola, is a vaccine-preventable respiratory disease. Before a routine vaccination program was introduced in the U.S., measles was a common illness in infants, children and young adults. As most people have now been vaccinated in the U.S., the disease was declared eliminated in the U.S. in 2000. Measles is still common in many parts of the world where vaccination rates are low, including countries in Africa, Asia, Europe and South America. In recent years, measles has been imported into Florida from frequently visited countries, including Brazil, Venezuela and Ukraine, where large outbreaks have been reported. Most imported measles cases occur among unvaccinated U.S. residents who were infected while traveling abroad, became symptomatic after returning to Florida, and in some cases infected others in their communities, causing small localized outbreaks.

Disease Facts

Caused by measles virus

Illness includes high fever, cough, runny nose and red watery eyes; possibly followed by tiny white spots inside the mouth and a red generalized maculopapular rash

Transmitted through aerosolized droplets of saliva or mucus from the mouth, nose or throat of an infected person, usually when they cough, sneeze or talk

Under surveillance to take immediate public health actions in response to every suspected measles case to prevent further transmission, monitor effectiveness of immunization programs and vaccines

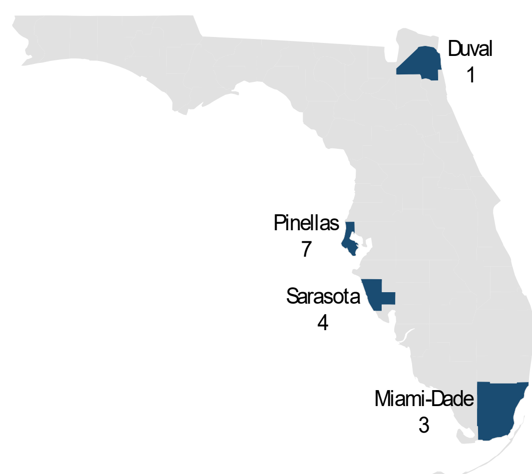
Florida reported 15 cases of measles in 2018, all of which were in unvaccinated persons. The 11 outbreak-associated cases were a result of two known outbreaks. The first outbreak occurred in a household of four family members with an unidentified exposure to the virus. The second outbreak occurred after an infected child returned from the Ukraine and infected at least four other persons in their close-knit community. These cases were linked through laboratory testing to another household cluster of two cases in the same county. For more information on this outbreak, see Section 3: Notable Outbreaks and Case Investigations.

Five or less measles cases were reported each year from 2014 to 2017; measles incidence increased notably in 2018 with 15 cases reported. Cases occurred in people <30 years old and more commonly in females. Most cases were in whites and non-Hispanics. Most cases were outbreak-associated. Four cases were hospitalized; no deaths occurred.

Summary	
Number of cases in 2018	15
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	6
Median	4
Min-max	1 - 27
Gender	**Number**
Female	9
Male	6
Unknown gender	0
Race	**Number**
White	14
Black	0
Other	1
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	13
Hispanic	2
Unknown ethnicity	0

Case Classification	Number
Confirmed	15
Probable	0
Outcome	**Number**
Interviewed	14
Hospitalized	4
Died	0
Outbreak Status	**Number**
Sporadic	4
Outbreak-associated	11
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	11
Afghanistan	1
Brazil	1
Ukraine	1
Venezuela	1

Measles cases occurred in residents of four Florida counties in 2018. Almost half of the cases were identified in Pinellas County. Most infections were acquired in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Meningococcal Disease

Five *Neisseria meningitidis* serogroups cause almost all invasive disease (A, B, C, Y and W). Vaccines are available to provide protection against these serogroups. In 2016, the incidence of meningococcal disease reached a historic low in Florida. The number of cases reported each year since has remained relatively stable.

The most commonly identified serogroup causing meningococcal disease can vary year to year. In 2018, serogroup B was the most frequently identified serogroup in Florida, which aligns with national trends.

Disease Facts

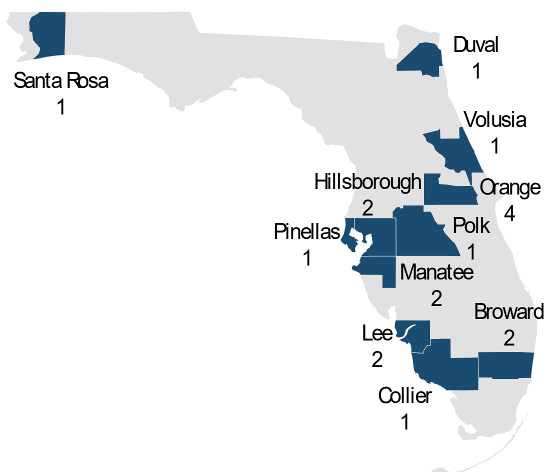
- **Caused** by *Neisseria meningitidis* bacteria
- **Illness** is most commonly neurological (meningitis) or bloodstream infections (septicemia)
- **Transmitted** person to person by direct contact with respiratory droplets from nose or throat of colonized or infected person
- **Under surveillance** to take immediate public health actions in response to every suspected meningococcal disease case to prevent secondary transmission, monitor effectiveness of immunization programs and vaccines

The number of meningococcal disease cases reported decreased notably in 2015. Less than 20 cases were reported each year since. Cases were mostly in females, whites and non-Hispanics. All cases were sporadic. Most cases were hospitalized; one death occurred.

Summary	
Number of cases in 2018	18
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	38
Median	40
Min-max	0 - 82
Gender	**Number**
Female	11
Male	7
Unknown gender	0
Race	**Number**
White	14
Black	2
Other	2
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	16
Hispanic	2
Unknown ethnicity	0

Case Classification	Number
Confirmed	18
Probable	0
Outcome	**Number**
Interviewed	18
Hospitalized	17
Died	1
Outbreak Status	**Number**
Sporadic	18
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	16
Florida or Colombia	1
Florida or Colorado	1

Meningococcal disease cases occurred in residents of 11 Florida counties in 2018. Each of the 11 counties had one or two cases identified, except for Orange County which had four cases. Most infections were acquired in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Ricin Toxin Poisoning

Ricin is a poison found naturally in castor beans. If castor beans are chewed and swallowed, the released ricin can cause injury. Ricin can be extracted from the waste material left over from processing castor beans. It takes a deliberate act to extract and purify ricin from castor beans and use it to poison people. Intentional ingestion of castor beans to attempt self-harm has been observed. Unintentional exposure to ricin is unlikely, except through the ingestion of castor beans.

Disease Facts

Caused by ricin

Illness includes nausea, vomiting, abdominal pain, fever and diarrhea that may become bloody; severe presentations may include vascular collapse, shock and death

Transmitted via inhalation, injection or ingestion of ricin, direct skin or eye contact with ricin

Under surveillance to identify and respond to a self-harm, criminal or bioterrorism incident (as exposures are intentional)

The major symptoms of ricin poisoning depend on the route of exposure and the dose received; many organs may be affected in severe cases. Onset of ricin poisoning symptoms occurs within hours of exposure. Ricin is less toxic by oral ingestion than by other routes; it is the most common exposure route for intentional and unintentional exposures reported in Florida. Symptoms associated with ingestion include nausea, vomiting, abdominal pain, fever and diarrhea that may become bloody. Severe intoxications through ingestion may involve vascular collapse, shock and death.

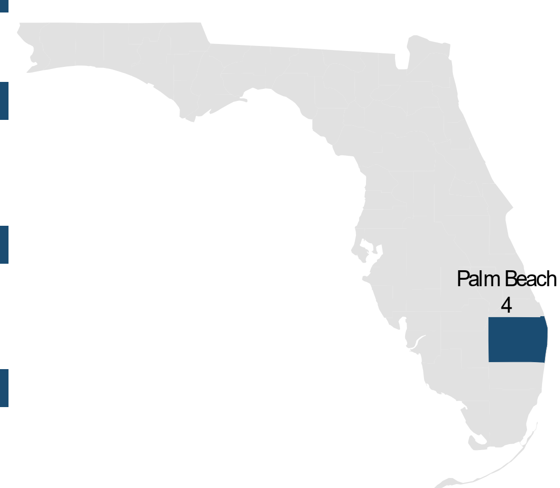
Four ricin toxin poisoning cases were reported in Florida in 2018. Three cases were the result of persons intentionally consuming crushed castor beans in a tea for supposed health benefits. One case consumed castor beans from a garden prior to knowing they were toxic.

The number of ricin toxin poisoning cases reported varies by year with no clear trend. Cases occurred in adults and most commonly in blacks and non-Hispanics. Most cases were outbreak-associated. Two cases were hospitalized; no deaths occurred.

Ricin toxin poisoning cases occurred in residents of Palm Beach county in 2018. All cases were exposed in Florida.

Summary	
Number of cases in 2018	4
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	35
Median	35
Min-max	21 - 49
Gender	**Number**
Female	2
Male	2
Unknown gender	0
Race	**Number**
White	1
Black	3
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	4
Hispanic	0
Unknown ethnicity	0

Case Classification	Number
Confirmed	2
Probable	2
Outcome	**Number**
Interviewed	4
Hospitalized	2
Died	0
Outbreak Status	**Number**
Sporadic	1
Outbreak-associated	3
Outbreak status unknown	0
State Where Exposed	**Number**
Florida	4



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Saxitoxin Poisoning (Paralytic Shellfish Poisoning)

Saxitoxin poisoning, more commonly known as paralytic shellfish poisoning (PSP), is caused by an extremely potent neurotoxin called saxitoxin. Saxitoxin is typically found in bivalves (e.g., mussels, clams, oysters, scallops) but can also be found in gastropods (e.g., conch, snails, whelk) and puffer fish. PSP cases have a high mortality rate in situations where medical treatment is not available. Medical treatment typically consists of respiratory support and fluid therapy. For people surviving 24 hours, prognosis is considered good with no lasting side effects anticipated.

Disease Facts

Caused by saxitoxin

Illness is primarily neurological (numbness or tingling of the face, arms and legs; headache, weakness, ataxia, vertigo, parasthesias, respiratory distress); some gastroenteritis (diarrhea, vomiting) may also occur; in severe presentations, muscle paralysis can lead to respiratory failure and death

Transmitted via ingestion of certain fish or molluscan shellfish containing saxitoxin in their tissues

Under surveillance to identify sources of transmission (e.g., puffer fish or shellfish collection area) and mitigate source, monitor incidence over time, estimate burden of illness

The first case of PSP in the U.S. was reported in 2002. The case was associated with consumption of puffer fish harvested from Florida's east coast, where saxitoxin has since been detected in the southern, checkered and bandtail puffer fish. As a result, harvesting of all puffer fish (genus *Sphoeroides*) in Volusia, Brevard, Indian River, St. Lucie and Martin counties is banned per Florida Administrative Code Rule 68B-3.007.

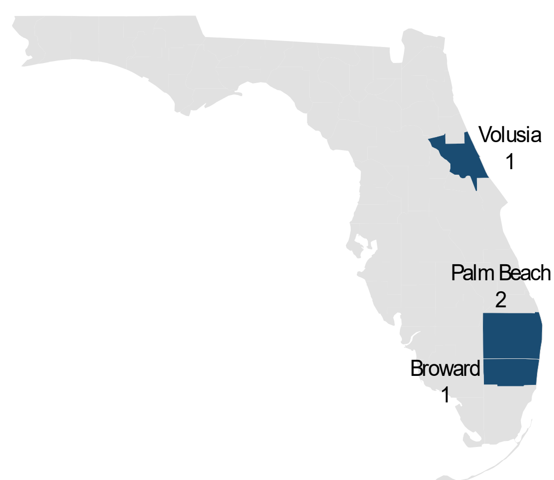
Four PSP cases were reported in Florida from 2009 to 2017, all associated with consumption of puffer fish. In 2018, three outbreaks involving four PSP cases were investigated. Three cases were associated with consumption of recreationally harvested puffer fish (checkered: two cases; unknown species: one case) and one with consumption of clams from a restaurant. The most common symptoms reported among cases were numbness and tingling of the face (four cases), difficulty breathing (three cases), vomiting (three cases) and difficulty speaking (two cases). Two cases were hospitalized for their symptoms with one case requiring the use of a respirator. All cases recovered with no reported lasting side effects.

The number of PSP cases reported varies by year with no clear trend. In 2018, cases were in non-Hispanic adults and more commonly in whites. Two cases were hospitalized; no deaths occurred.

Summary	
Number of cases in 2018	4
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	39
Median	39
Min-max	26 - 50
Gender	**Number**
Female	2
Male	2
Unknown gender	0
Race	**Number**
White	3
Black	1
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	4
Hispanic	0
Unknown ethnicity	0

Case Classification	Number
Confirmed	0
Probable	4
Outcome	**Number**
Interviewed	4
Hospitalized	2
Died	0
Outbreak Status	**Number**
Sporadic	2
Outbreak-associated	2
Outbreak status unknown	0
State Where Exposed	**Number**
Florida	4

PSP cases occurred in residents of three Florida counties in 2018. Palm Beach County had two cases; the other two counties had one case each. All cases were exposed in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Typhoid Fever
(*Salmonella* Serotype Typhi)

Typhoid fever is common in most parts of the world except in industrialized regions such as the U.S., Canada, Western Europe, Australia and Japan. Good sanitation and aggressive case follow-up help prevent typhoid fever from becoming endemic in industrialized regions.

Most *Salmonella* serotype Typhi (S. Typhi) infections are acquired in other countries, but infections can be acquired in Florida. In 2018, only five cases (38%) were known to be imported from other countries. Four cases (31%) were acquired in Florida; however, it is noteworthy that one of those cases had relevant travel to India just outside the standard 30-day exposure period used to determine the imported status of a typhoid fever case.

Disease Facts

- **Caused** by *Salmonella* serotype Typhi bacteria
- **Illness** includes fever and possibly weakness, stomach pain, headache, loss of appetite, diarrhea or constipation, cough or rash
- **Transmitted** via fecal-oral route, including person to person, foodborne and waterborne
- **Under surveillance** to identify sources of public health concern (e.g., an infected food handler or contaminated commercially distributed food product), prevent transmission from infected people, identify other unrecognized cases

Of the five cases know to be acquired in other countries, all reported visiting friends or relatives as their reason for travel. Routine typhoid vaccination is not recommended in the U.S., but the Centers for Disease Control and Prevention does recommend vaccination for travelers to parts of the world where typhoid fever is common, people in close contact with a chronic carrier of S. Typhi and laboratory staff who work with S. Typhi bacteria. None of the interviewed typhoid fever cases in 2018 reported being vaccinated.

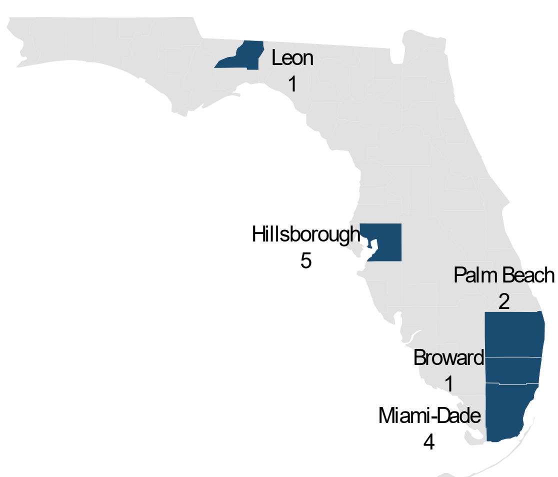
Four outbreak-associated cases were reported in 2018. One case was linked to an ill relative in Bangladesh. The three remaining outbreak-associated cases were in a group of refugees from the Democratic Republic of the Congo who recently arrived from a refugee camp in Burundi. Unique epidemiological factors made it difficult to determine where these three infections were acquired. For more information on this investigation, see Section 3: Notable Outbreaks and Case Investigations.

Typically less than 20 typhoid fever cases are reported in Florida each year; 13 cases were reported in 2018. Cases occurred more commonly in males, blacks and non-Hispanics. Most 2018 cases were hospitalized, but no deaths occurred. All but one case was confirmed.

Summary	
Number of cases in 2018	13
5-year trend (2014 to 2018)	
Age (in Years)	
Mean	33
Median	28
Min-max	2 - 83
Gender	**Number**
Female	5
Male	8
Unknown gender	0
Race	**Number**
White	3
Black	6
Other	4
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	10
Hispanic	3
Unknown ethnicity	0

Case Classification	Number
Confirmed	12
Probable	1
Outcome	**Number**
Interviewed	12
Hospitalized	9
Died	0
Outbreak Status	**Number**
Sporadic	9
Outbreak-associated	4
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	4
Florida or Burundi	3
Bangladesh	1
Haiti	1
India	1
Pakistan	1
India or Indonesia	1
Unknown	1

Typhoid fever cases occurred in residents of five Florida counties in 2018. About two-thirds of the cases were identified in Hillsborough (five cases) and Miami-Dade (four cases) counties.



See Appendix III: Report Terminology for explanations of case classification, outcome and outbreak status.

Notable Outbreaks and Case Investigations

Section 3

Florida HEALTH

Section 3: Notable Outbreaks and Case Investigations

In Florida, any disease outbreak in a community, hospital or institution, and any grouping or clustering of patients having similar disease, symptoms, syndromes or etiological agents that may indicate the presence of an outbreak are reportable as per Florida Administrative Code Chapter 64D-3. Selected outbreaks and case investigations of public health importance that occurred in 2018 are briefly summarized in this section.

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Section 3: Notable Outbreaks and Case Investigations

Bacterial Diseases

Summary Report of a Legionellosis Investigation Within a Community, Sarasota County, February 2018

Authors
Kimberly Stockdale, MSPH; Michael Drennon, MSPH, MPA; Jennifer Clemente, MS, RS; Tom Higginbotham

Background

On February 23, 2018, the Department of Health in Sarasota County (Sarasota County Health Department [CHD]) was notified by a local hospital of five positive *Legionella pneumophila* urine antigen laboratory results for individuals residing within the same Venice, Florida, community. Two of these individuals reported exposure to the community whirlpool spa. In accordance with the FDOH Guidelines for the Surveillance, Investigation and Control of Legionnaires' Disease in Florida, a full investigation was initiated on February 23.

Sarasota CHD's Environmental Health (EH) performed a routine environmental inspection of a whirlpool spa the afternoon of February 23 and found adequate chlorine and pH levels. Due to the investigation, Sarasota CHD's EH closed the whirlpool spa. Once Sarasota CHD EH notified management of the cases within the community, the management chose to close the two community pools.

Methods

Epidemiologic Investigation

A confirmed case of Legionnaires' disease was defined as an individual who was a resident, employee or visitor of the community between February 1, 2018 and February 28, 2018, with X-ray-confirmed pneumonia and a positive urine antigen laboratory result for legionellosis. A probable case of Legionnaires' disease was defined as an individual who was a resident, employee or visitor of the community between February 1, 2018 and February 28, 2018, with X-ray-confirmed pneumonia.

Medical records were requested from the treating hospitals and reviewed by Sarasota CHD epidemiologists. Surveillance included Sarasota CHD working with hospital staff to identify additional residents from the community who may present or have presented with pneumonia symptoms. In addition, resident notification letters were provided to the community management for distribution. On February 27, Sarasota CHD epidemiology and EH personnel attended a town hall meeting in the community event center. Information was provided to the approximately 400 residents and visitors on *Legionella*, Legionnaires' disease and the current outbreak investigation process. A question and answer session followed the information sharing. An Epi-X call for cases was sent out March 2, and an EpiCom was sent out March 5. Additional case notifications were received through March 5, 2018.

The southwest Regional Environmental Epidemiologist (REE) developed an initial survey to assess exposures in the community. Sarasota CHD epidemiologists interviewed cases using a standardized questionnaire. A case-control study was performed to determine possible risk factors. All confirmed and probable cases were included in the study. Two controls per case were randomly selected from community residents. Control interviews were conducted via telephone by Sarasota CHD epidemiology personnel. Data entry and analysis were performed with Epi Info™ .

Laboratory Analysis

Environmental samples were collected by Sarasota CHD and analyzed by the FODH Bureau of Public Health Laboratories (BPHL) in Jacksonville. Clinical specimens were tested at the hospital or private practice where treatment was provided.

Environmental Assessment

On February 27, two EH specialists from Sarasota CHD and the southwest REE conducted an on-site environmental assessment of the community. Upon arrival, the EH specialists and the southwest REE met with the community association Assistant Manager and two community maintenance employees. The providing pool service company's Operations Manager, a repair employee and a pool technician were also in attendance. The assessment included site observations, a facility questionnaire and the collection of four bulk water and four swab samples to test for the presence of *Legionella*. Free chlorine, water temperature and pH were measured and recorded for each water sample collected and additional locations to assess chemical water quality.

Results

Epidemiologic Investigation

There were 20 cases associated with this community, with 13 confirmed cases and seven probable cases. Sixteen of the cases were residents of the community, three were out of state visitors (New York, New Jersey, Illinois) and one was an employee. Cases were 70% male. Ages ranged from 54–82 years old, with a median of 67 years old. Ten (50%) of the reported cases had a preexisting immune condition, which increases the risk of *Legionella* infection. The symptoms that occurred with the highest frequency were pneumonia (100%), fever (95%) and malaise (45%).

The first cases reported dates of onset of February 12 and the last case onset was February 22. The epidemiologic curve demonstrates a point source exposure. Of the 20 cases, 15 were hospitalized, with the longest inpatient hospital stay noted as 27 days. Thirteen cases were urine antigen-positive for *Legionella* serogroup 1. Of the 40 controls, two did not provide their birth date or age. The remaining 38 controls' ages ranged from 54–80 years old, with a median of 67 years old. Twelve potential community exposures among case and control subjects were assessed. Spending time in the resort pool and the whirlpool spa were the only exposures that were statistically significant, with an odds ratio of 30.36 (95% confidence interval 3.64–252.98) and 4.35 (95% confidence interval 1.38–13.71), respectively (Table 1).

Table 1	Cases (n=20)		Controls (n=40)			
	Exposed	Unexposed	Exposed	Unexposed	OR	95% CI
Resort Pool	17	1	14	25	30.36	3.64–252.98
Whirlpool Spa	12	8	10	29	4.35	1.38–13.71
Whirlpool Spa Shower	1	16	2	38	1.19	0.10–14.05
Fitness Center Restrooms	6	12	8	31	1.94	0.55–6.77
Main Clubhouse Restrooms	3	14	9	29	0.69	0.16–2.96
Cabana Restrooms	6	10	12	28	1.4	0.41–4.73
Event Center Restrooms	5	12	12	23	0.8	0.23–2.80
Lap Pool	2	15	3	37	1.64	0.25–10.85
Irrigation Mist Clubhouse	1	15	5	32	0.43	0.05–3.98
Lap Pool Shower	0	18	1	39	N/A	
Resort Pool Shower	2	16	0	40	N/A	
Event Center Kitchen	0	18	3	37	N/A	

During the interview process, multiple residents stated that they reported to management the whirlpool spa was "green and filthy" around February 11, 2018 and February 12, 2018. These residents also reported that they still used the whirlpool spa. The maintenance logs of the whirlpool spa that were collected during the environmental assessment revealed that the automatic disinfectant feed to the whirlpool spa was not working prior to February 13, 2018.

Laboratory Analysis

Eight environmental samples, four one-liter grabs and four swabs, were collected on February 27, 2018, and arrived at BPHL–Jacksonville for analysis on February 28, 2018. One of the samples tested positive for *Legionella pneumophila* serogroup 1. This sample was taken from the fitness center hot water heater, sample number 5. All other samples tested by BPHL were negative for *Legionella* spp. Six grab samples were assessed on site for chemical water quality.

Environmental Assessment

This is a gated community consisting of approximately 1,869 homes, quads and villas. Construction started in 2005, and new homes are still being built. The central area of the community contains a main resort center, which includes a fitness facility, arts and crafts room, a library and offices. There is a resort pool with a central fountain feature and a few bubblers near the zero-entry side of the pool. There is also a whirlpool spa, a lap pool and three outdoor showers. A cabana building with restrooms and an event center building are also located in this main area. The community's source of water is public water from the City of North Port. At the time of the assessment, chlorine was used as the method of disinfection. The facility does not monitor incoming water parameters. The community did not have a water safety plan or a *Legionella* prevention plan.

During the on-site environmental assessment, samples were taken from the whirlpool spa and sand filter, the resort pool shower, the pool feature collection tank, the fitness center hot water heater, the cabana men's restroom and the event center women's restroom. Chemical water quality was also assessed at the whirlpool spa shower, the cabana hot water tank and the resort pool. The hot water temperatures ranged from 87.1°F to 109.6°F, with a median of 96.3°F. Total chlorine ranged from 0.00–8.0 ppm, with a median of 0.8 ppm. During the assessment, recommendations were made to maintenance based on observations, including increasing the temperature of the fitness facility hot water heater and flushing the sinks in the event center restrooms on a periodic basis to reduce stagnant water. Handouts were provided to the community and pool management regarding remediation. Centers for Disease Control and Prevention (CDC), American Society for Heating, Refrigerating, and Air-Conditioning Engineers and FDOH resources were also provided.

After the assessment, Sarasota CHD's EH personnel continued to work with community management to develop a remediation plan for the whirlpool spa and the resort pool.

Conclusions

Based on the epidemiological data and environmental assessment, this outbreak of Legionnaires' disease is most likely associated with exposure to the whirlpool spa located in the community. The odds ratios for the resort pool exposure and the whirlpool spa exposure were both significant. The central decorative fountain in the resort pool was shut down due to maintenance issues from February 7, 2018 to February 27, 2018. The dates of onset of the cases began February 12, 2018 and ended February 22, 2018, which does not match a most likely incubation period of 2 to 10 days from exposure, considering the last potential date of exposure would have been February 6, 2018.

Section 3: Notable Outbreaks and Case Investigations

The environmental samples for *Legionella* spp. resulted in a positive sample from the fitness center hot water heater. However, the odds ratio for this exposure was not significant at 1.94 (95% confidence interval 0.55–6.77). The whirlpool spa results were negative for *Legionella* spp., but the chlorine levels were 8.0 ppm. This level of disinfectant is well above the 2.0 ppm concentration in which *Legionella* spp. may be viable but non-culturable.

A follow-up town hall meeting was held on March 13, 2018, in which Sarasota CHD's Epidemiology and EH personnel provided an update on the investigation and the preliminary conclusions. A recommendation letter was also mailed to the community management on March 19, 2018. It was recommended to use the Domestic Hot Water Systems Emergency Management and Best Practices guidelines provided by Sarasota CHD to remediate and maintain the hot water heater system associated with the fitness center hot water heater. It was also recommended to use Point of Use filters for *Legionella pneumophila* on faucets and showers tied to the fitness center hot water heater until remediation can be validated. Additional recommendations were provided along with the below resources.

One limitation of the investigation was the difficulty with recall several weeks after exposure during the case control study. Another limitation was the ability to culture *Legionella* spp. from the whirlpool spa samples in which the chlorine levels were well above 2.0 ppm. The negative laboratory result does not rule out the possibility that *Legionella* spp. were present at the time of exposure.

Resources

1. A New Practical Guide for Developing a Water Management Plan to Reduce Legionella Growth and Spread in Buildings; cdc.gov/legionella/maintenance/wmp-toolkit.html.
2. ASHRAE Guidelines 12-2000 "Minimizing the Risk of Legionellosis Associated with Building Water Systems;" baltimoreaircoil.com.
3. ASHRAE Standard 188-2015: cdc.gov/legionella/health-depts/ashrae-faqs.html; ashrae.org.

References:

1. Florida Department of Health – Guidelines for the Surveillance, Investigation, and Control of Legionnaires' Disease in Florida. November 13, 2014. Retrieved from: http://www.floridahealth.gov/diseases-andconditions/legionnairesdisease/_documents/GSI%20Legionella%20Update%20Final2.pdf
2. Legionella. Centers for Disease Control and Prevention. cdc.gov/legionella/index.html

Section 3: Notable Outbreaks and Case Investigations

Pertussis Outbreak in Three Pinellas County Schools, September, November 2018

Author
Rebecca Bohinc, MPH, CPH; Kevin Baker, MPH, CPH, CHES

Background

On September 26, 2018, the Pinellas County Health Department (CHD) was notified of a positive polymerase chain reaction (PCR) result for *Bordetella pertussis* by a commercial laboratory. The case (Case A) was a 4-year-old female who attended a local school (School A) and identified a sick household contact who also attended School A while symptomatic three weeks prior. The sick contact was never medically evaluated but met clinical and epidemiological criteria to be reported as a probable case. On October 15, Pinellas CHD was notified of two PCR-positive results for *B. pertussis,* both of which had an association with a local school (School B). On October 23, Pinellas CHD was notified of a PCR-positive result for *B. pertussis* in a child who attended a third local school (School C). Although the three affected schools did not report common activities among their students, some cases identified common community exposures to known cases from other schools. Ongoing transmission within each school then persisted as ill children attended school during their early onset of illness and infectious period.

Methods

Investigations included review of medical records, laboratory results and interviews with cases' parents and parents of any ill contacts to identify exposure history and close contacts. Enhanced surveillance was conducted at all three schools to identify additional cases. A confirmed case was defined as an individual with a cough for at least two weeks, an additional symptom of paroxysmal cough, post-tussive vomiting or whoop, and either a positive PCR result for *B. pertussis* or an epidemiological link to a confirmed case with a positive PCR result. A probable case was defined as an individual with a cough for at least two weeks.

Results

A total of 27 symptomatic individuals were investigated as part of the outbreak from September 26 to November 8, 2018. Three individuals were associated with School A, 14 were associated with School B and 10 were associated with School C. Investigations led to 11 cases meeting the case definition, of which 45% were classified as confirmed and 55% were classified as probable. Cases ranged from 8 months to 7 years of age and included seven males and four females. None of the reported cases had ever received a vaccination for *B. pertussis.*

Conclusions

Pinellas CHD worked closely with affected schools and provided notification letters to attendees alerting symptomatic individuals to seek immediate medical care. Notifications prompted medical evaluation, diagnostic testing and treatment that lessened the duration of illness. However, those who were treated promptly and did not experience at least two weeks of cough did not meet the case definition to be reported as part of the outbreak. As a result, 16 individuals were investigated who had both an exposure to a student who attended an affected school and a positive PCR laboratory result but lacked the duration of illness to be reported accordingly. Such results indicate the limitations of the current case definition to fully capture the scope of the outbreak.

Of note, prior to admittance to or attendance in a public or private school, grades kindergarten through 12, each child should present, or have on file with the school, a certification of immunization for the prevention of communicable diseases for which immunization is required by the Department. These provisions do not apply if there is a religious exemption, a medical exemption (either temporary or permanent) or the school issues a temporary 30-day exemption until records are obtained (F.S. 1003.22).

Section 3: Notable Outbreaks and Case Investigations

Containment of a *Klebsiella pneumoniae* Carbapenemase (KPC)-Producing *Serratia marcescens* Outbreak in a Ventilator-Capable Skilled Nursing Facility (vSNF) Through Collaboration, Miami-Dade County

Authors
Nychie Dotson, PhD, MPH, CIC, CPHQ, FAPIC; Sebastian Arenas; Kendra Edwards, M (ASCP)CM; Danielle Rankin, MPH, CIC

Background

Antibiotic resistance is one of the largest public health challenges. *Klebsiella pneumoniae* carbapenemase (KPC) is one of several mechanisms of resistance through which carbapenem-resistant Enterobacteriaceae confer antibiotic resistance, thereby making infections difficult to treat. On May 15, 2018, the Department of Health in Miami-Dade County was notified by an acute-care hospital (AHC) of three patients with carbapenem-resistant *Serratia marcescens* to be admitted from the same ventilator-capable skilled nursing facility (vSNF). The patients shared common risk factors such as tracheotomies, ventilator and hemodialysis dependence and indwelling catheters.

Methods

In collaboration with the ACH and vSNF, we initiated a containment response that consisted of infection control assessments, point-prevalence surveys (PPS) and retrospective and prospective laboratory surveillance. Infection control assessments were conducted biweekly with assessment of respiratory care, environmental cleaning and adherence to hand hygiene. PPS were collected in the ventilator-capable unit biweekly through rectal swabs and were tested by the Southeast Regional Antibiotic Resistance Laboratory Network (ARLN) in Tennessee. Expanded surveillance was instituted in partnership with the local ACH to identify positive patients who might have been missed by the PPS.

Results

From June 2018 to February 2019, 12 biweekly screenings were conducted, which identified 11 additional patients colonized with KPC-producing *Serratia marcescens*; an additional six cases were identified through surveillance at the ACH. Infection control assessments revealed an overall lack of hand hygiene compliance (62%) with greater reduction in hand hygiene compliance after body fluid exposure (43.8%) and after contact with patient surroundings (40%) (Table 1). Environmental cleaning observations identified a lack of standardized cleaning and disinfection techniques with EPA-registered disinfectant and failure to follow instructions for use.

Table 1: Hand hygiene compliance rate by opportunity (n=63)

Opportunity	Hand hygiene compliance (%)
Before Touching a Patient (n=18)	88.8
Before Clean/Aseptic Procedure (n=2)	100
After Touching a Patient (n=7)	85.7
After Body Fluid Exposure Risk (n=16)	43.8
After Touching Patient Surroundings (n=20)	40

Conclusions

Collaboration is essential for the containment of antibiotic-resistant organism outbreaks. Throughout the course of the investigation, the most concerning issues at the vSNF included lack of hand hygiene, a paucity of adherence to protective personal equipment when treating patients with multidrug-resistant organisms and gaps in environmental cleaning and disinfection. These deficiencies in infection control led to 20 patients becoming infected or colonized with KPC-producing *S. marcescens* over a nine-month period. Collaboration with the Centers for Disease Control and Prevention, ARLN in Tennessee, the Department, local acute-care hospitals and the vSNF was instrumental for the successful containment of the state's first reported outbreak of *Klebsiella pneumoniae* carbapenemase-producing *Serratia marcescens* in a vSNF.

Three *Listeria monocytogenes* Cases and an Ice Cream Recall, Florida

Author
Jamie DeMent, MNS, CPM

Background

On September 12, 2018, the Centers for Disease Control and Prevention (CDC) contacted the Department of Health Food and Waterborne Disease Program (FWDP) regarding three *Listeria monocytogenes* cases that were highly related genetically to each other and to environmental isolates taken from a Florida ice cream manufacturer. The cases' isolation dates ranged from August 17, 2013 to July 23, 2018. The environmental isolates from the facility were collected in August 2017 during a routine facility inspection by the U.S. Food and Drug Administration (FDA).

Methods

Epidemiological records were reviewed for the three cases. Interviews of the cases or guardians were conducted to elicit additional details regarding ice cream products potentially consumed. Invoices were requested for ice cream products consumed during patients' exposure period from the assisted living facilities. Multiple meetings with the FDA, the Florida Department of Agriculture and Consumer Services, CDC and FDOH were conducted to share information on case exposures, historical and current facility inspection results and discuss next steps. The FDA conducted a follow-up inspection of the manufacturing facility from September 25, 2018 through October 15, 2018. All clinical and environmental isolates were analyzed using whole genome sequencing (WGS) methods by the FDA.

Results

The three male cases ranged in age from 88–96 years (median 89 years). All cases were hospitalized and there were no reported deaths. Reported illness onset dates were August 16, 2013, September 6, 2013, and July 22, 2018. All cases resided in assisted living or nursing home facilities prior to their illness onset. Interviews and invoices obtained indicated that the three cases consumed or likely consumed ice cream prior to illness onset that was produced in the same ice cream manufacturing plant in Florida.

During the 2017 FDA inspection, *Listeria*-positive environmental samples from the facility resulted in a product recall and commitments by the firm to implement corrective actions for identified insanitary conditions. The 2018 inspection of the ice cream plant also identified insanitary conditions that could lead to *Listeria* contamination in finished products. Furthermore, the firm did not provide evidence of implementing corrective actions committed to in response to the 2017 inspection and did not have documentation for the firm's food safety plan including developing required written sanitation practices. This plant provided 40% of its products to nursing homes and assisted living facilities.

WGS conducted by the FDA identified that the *Listeria monocytogenes* isolates collected from the three ill cases were genetically identical to the *Listeria monocytogenes* isolates taken from environmental samples in the implicated facility in 2017 and 2018.

Conclusions

Ice cream manufactured by a single food processing plant was linked to three cases of listeriosis in Florida from August 2013 to July 2018. On October 19, 2018, the FDA used the authority granted under the 2011 FDA Food Safety Modernization Act to suspend the food facility registration of the implicated facility. The facility ceased their operations and voluntarily recalled all ice cream products manufactured from August 29, 2017 to October 11, 2018.

Resources

FDA Food Code: fda.gov/food/fda-food-code/food-code-2017

Viral Diseases

Measles Outbreak in Pinellas County, Florida, August 2018

Authors

Rachel Ilic; Abdiel Laureano-Rosario, PhD; Kevin Baker, MPH, CPH, CHES; JoAnne Lamb, MPH; Sharlene Edwards, MPH, RN; Ulyee Choe, DO

Background

On August 8, 2018, the Pinellas County Health Department (CHD) was notified of a suspected case of measles in a 6-year-old unvaccinated male (Case A). The child had no history of recent travel or known exposure to measles. Samples were collected and tested positive for measles via reverse transcription polymerase chain reaction (RT-PCR). On August 14, Pinellas CHD received a second report of a 2-year-old unvaccinated male (Case B) who tested immunoglobulin M (IgM)-positive for measles. Case B’s parent (Case C; 27 years old and unvaccinated) also reported similar symptoms. Specimens were collected from Cases A, B and C and were forwarded to the Centers for Disease Control and Prevention (CDC); all matched the D8 worldwide-circulating genotype. Pinellas CHD initiated outbreak investigation and response activities in coordination with the facilities the cases visited while infectious. Through heightened surveillance and investigation, transmission was identified in a community with a low vaccination rate, with the source case reporting international travel to the Ukraine. By August 28, Pinellas CHD reported seven confirmed measles cases, six of which were locally acquired.

Methods

Epidemiologic Investigation

Following notification of Case A on August 8, Pinellas CHD began an investigation, using the Council of State and Territorial Epidemiologists’ and CDC’s case definitions. Cases were identified through routine health care provider reporting and contact investigations. Suspected measles cases were interviewed to determine onset dates, collect exposure histories within 21 days prior to rash onset, identify contacts during the infectious period (four days before and four days after rash onset), and recommend measles testing. Contacts were defined as persons who had any shared airspace with cases during their infectious period. Contacts were assessed for immunity to measles over the phone and via medical records. Documented evidence of immunity is classified as being born prior to 1957, having laboratory evidence of measles immunity or infection or being up-to-date on MMR (measles-mumps-rubella) vaccination. High-risk contacts were required to provide documented evidence of immunity, which included infants, pregnant women, immunocompromised individuals and individuals working in health care settings. Pinellas CHD used the Florida State Health Online Tracking System (Florida SHOTS) immunizations registry to check the vaccination status of high-risk contacts. All exposed individuals received a letter detailing their exposure and were instructed to receive post-exposure prophylaxis (PEP) and self-monitor for symptoms 21 days post-exposure. PEP recommendations consisted of either receiving MMR vaccine within 72 hours of exposure or immune globulin (IG) within six days of exposure.

Laboratory Analysis
Pinellas CHD collected nasopharyngeal swabs and urine samples for RT-PCR or serum from cases for IgM measles testing and sent them to the Department of Health Bureau of Public Health Laboratories. The type of test performed was dependent on whether specimens could be collected within 10 days from each case's symptom onset.

Results
Epidemiologic Investigation
Following notification of Case A on August 8, Pinellas CHD began an investigation. During his incubation period, Case A attended a church camp. On August 23, Pinellas CHD received notification of another church camp attendee (Case D) who experienced symptoms consistent with measles with an onset of July 19 who attended the same church camp while ill. An interview with the case's parent revealed that Case D was exposed to an unvaccinated cousin (Case E) who returned from Ukraine and began experiencing an acute febrile rash illness on July 9. Case D was also in contact with two additional unvaccinated cousins (Cases F and G) who experienced acute febrile rash illnesses on July 30 and August 10, respectively. A serum specimen was collected for Case D on August 24 for IgM serology testing and resulted positive on August 28. Pinellas CHD also discovered that Cases F and G attended the same church camp; however, no additional contacts experiencing measles symptoms were identified. Serum specimens were requested for both cases for IgM and IgG serology, both of which resulted positive on September 10. Pinellas CHD made multiple attempts to interview Case E who was reported to have traveled to Ukraine from June 21 to July 5 and visited a local hospital emergency department on July 7 for an acute febrile rash illness; however, interview attempts were unsuccessful.

Due to the epidemiologic link among patients and clinically compatible symptoms, Case E was reported as a confirmed case of measles and was identified as the source case. A total of 10 contacts received PEP via IG, and 64 susceptible contacts, who did not receive recommended PEP, were contacted daily to assess for symptoms. Over 60 health care workers and daycare attendees who did not have documented evidence of immunity were excluded from work and daycare, informed to stay isolated at home until 21 days post-exposure, and were assessed daily for measles symptoms. On September 30, 2018, enhanced surveillance concluded following two maximum incubation periods from the date Case C was last considered infectious.

Public Health Response
In response to increased measles activity, Pinellas CHD disseminated measles information to health care facilities on May 7 and redistributed following a public health advisory regarding Case A on August 13. Pinellas CHD also reached out to two neighboring counties' hospitals to identify local inventory of IG to ensure susceptible contacts could access PEP. Additional in-person education outreaches were provided at Case A's church and Case C's workplace to assist with answering any questions generated from the notifications of possible exposure.

Conclusions

Measles is considered eliminated in the U.S. since 2000; however, cases are observed every year among unvaccinated people. Pinellas County's measles outbreak had over 1,000 exposed contacts, with only ten (<1%) susceptible contacts receiving PEP by the recommended deadline. The source case was identified as having international travel to Ukraine during the incubation period, a country that was experiencing the largest measles outbreak at the time. Five out of the seven cases were directly associated with the source case and the Epidemiology Program was unable to find a direct connection between the source case and Cases B and C. Nonetheless, the genotype identified from these cases matched, suggesting an epidemiological link to the outbreak. Due to the severity of disease and ease of airborne transmission from person to person, measles case investigations can include a significant amount of contacts and require extensive monitoring and surveillance. Through the implementation of an incident command structure, Pinellas CHD was able to manage the public health response and prevent additional transmission.

Outbreak of Varicella at a Preschool, Palm Beach, February–April 2018

Author

Cody Katen, MPH

Background

On Friday, March 2, 2018, the Palm Beach County Health Department (CHD) was notified by a private pre-school that two attendees were physician-diagnosed with varicella. The onset date was February 16, and there were 44 people who could have been exposed between the onset and the date of notification. Control measures were discussed with the facility, including cohorting attendees who developed rash-like illness, excluding symptomatic staff and students until all lesions were crusted over, encouraging good hand hygiene and cough etiquette and appropriate environmental cleaning. The first line list was obtained on Monday, March 5, which indicated that nine attendees were symptomatic with presentation of skin rash. Throughout the investigation, parents were encouraged to seek medical evaluation for their children to aid in confirmation of varicella diagnosis. The outbreak investigation was closed on April 13, 2018.

Methods

Palm Beach CHD placed the affected facility under daily surveillance with the established case definition of "any staff or student who presents with a rash illness starting on or after February 16, 2018, or a positive culture result for varicella." Interviews were conducted for the 16 individuals who were identified through the line lists to determine their illness onset dates, descriptions of rashes and other associated symptoms, last days in attendance at pre-school and to obtain medical records for the children who visited doctors.

Results

This outbreak lasted 56 days. Fifteen children (ages 4–6 years old) and one adult who attended the pre-school were identified to have symptoms consistent with varicella. Two siblings were identified as additional cases through surveillance and interviews, bringing the total number of cases to 18. Inside the daycare there were three classrooms that were affected–the nursery (41% of the cases), classroom A (29.4% of the cases) and classroom B (29.4% of the cases). Descriptions of the rash were 56% vesicular and 43% macular/papular. The mean duration of rash (from onset to crusting) was 8.5 days for those who reported crusting of the rash. Only 25% of the attendees with a rash also reported having a fever. The school had a total census of 44 individuals (37 attendees and seven staff), 16 of whom became ill for an overall attack rate of 36.4%. Although the overall vaccination coverage at the school is unknown, through interviews it was determined that 88.2% of cases were unvaccinated. One case had physician-diagnosed history of disease, and one case had two documented vaccines on schedule.

Conclusions

The index case for this outbreak had an onset date of February 16, 2018, but it was not until 14 days later that the school called to notify the health department of varicella at the school. At that time there were at least six other students who were sick. Florida statute requires that all children entering both public and non-public preschools have an age-appropriate number of varicella vaccine doses. This vaccine requirement can only be waived for medical or religious exemptions or documented history of varicella by the child's health care provider. Considering a portion of the students at the facility were unvaccinated, prompt notification could have allowed the school to provide exclusion guidelines to the facility as well as signs and symptoms that parents should look for in their children. This also would have allowed the health department time to recommend and provide vaccines to the unvaccinated students, reducing their risk of developing the disease.

Non-Infectious Diseases

Pediatric Lead Poisoning From Lead Sinkers, Miami-Dade County, October 2018

Authors

Sudha Rajagopalan, MPH; Keren Joseph; Alexandra Aguilar

Background

On October 11, 2018, the Miami-Dade County Health Department (CHD) received an elevated blood lead level (BLL) result of 35 µg/dL from a 4-year-old child. The child was asymptomatic for lead poisoning, had pica and was diagnosed with autism. An investigation was initiated by the Miami CHD to determine the possible source of exposure.

No safe BLLs in children have been identified. Permanent neurologic damage and behavioral disorders are associated with BLLs at or below 5 µg/dL. Although public health efforts have been successful in reducing the prevalence of childhood lead poisoning, lead from innocent sources still pose a risk to children, including ingestion of foreign objects such as lead shot and curtain weights. Ingestion of foreign objects that contain lead can carry additional risk of acute lead poisoning secondary to dissolution and absorption of the ingested lead in the acid environment of the stomach in children.

Methods

Miami CHD initiated an investigation that included reviewing laboratory results, interviewing the caregivers of the child, consulting the Florida Poison Control Network, conducting a site visit and assessing the child's environment.

Results

Miami CHD interviewed the mother of the patient on October 11, 2018 to identify the patient's possible source of exposure. Investigation determined that the child's residence was built in 1970. Living in a home built prior to 1978 increases the risk of exposure to lead from lead-based paint. Additional risk factors included the father's occupation as a mechanic. The father indicated that he worked with radiators and batteries and that the work area contained a large amount of lead dust that contaminates his clothes and shoes. On October 16, 2018, the child experienced severe abdominal pain and vomiting and was admitted to the hospital. Due to the nature of the symptoms and the patient's history of pica, an abdominal X-ray was performed. The X-rays revealed that the patient had ingested a fishing weight. The foreign object was surgically removed via bowel irrigation.

The child's BLLs did not meet the criteria for chelation, so no additional treatment was administered. The child was a Medicaid recipient and was referred to Children's Medical Services and the Women, Infants and Children nutrition program for additional health care services, nutritional education, and counseling. Over the next four months, follow-up lead test results indicated that the child's BLLs continued to decline.

Conclusions

This investigation highlights the importance of lead testing in children with underlying risk factors for lead exposure such as thumb-sucking and pica. Although lead poisoning from an ingested lead-contaminated object is rare, it is still a cause for concern as the absorption of lead is increased from greater retention time of objects in the stomach and intestine. Continued follow-up testing and evaluation is necessary to ensure there is no additional increase in BLLs. Miami CHD provided health education on dietary needs and measures to prevent further exposure to take-home lead.

Investigation of Paralytic Shellfish Poisoning After Clam Consumption, Volusia County, June 2018

Authors

Emily Gibb; Gregory Thomas; Paul Rehme, DVM, MPH

Background

On June 14, 2018, the Volusia County Health Department (CHD) was notified by the Regional Environmental Epidemiologist about a report from the Florida Poison Information Center Network (FPICN) of a woman suspected to have paralytic shellfish poisoning (PSP). Volusia CHD initiated an investigation upon notification of the suspected case.

Methods

Epidemiologic Investigation

Volusia CHD epidemiology staff requested the report from FPICN and reviewed emergency department (ED) records to determine if the patient had been seen at a local ED. Epidemiology staff interviewed the patient the next day and confirmed she did not seek local medical care. She reported consuming steamed clams at a local restaurant the previous evening. The patient reported numbness all over beginning with her face, tunnel vision, vertigo and loss of speech.

A case was defined as someone who ate shellfish at the local restaurant on June 13, 2018 and experienced signs or symptoms consistent with PSP including tingling or numbness of the tongue or lips that spreads to the face, neck, fingers and toes.

Volusia CHD conducted a retrospective review to identify additional cases, including reviewing the Florida Complaint and Outbreak Reporting System (the statewide foodborne illness complaint log) for similar exposures and monitoring the Electronic Surveillance System for the Early Notification of Community-based Epidemics-Florida (ESSENCE-FL) for reports of similar recent illnesses. A request for meal remnants and specimen collection was made for laboratory analysis.

Environmental Assessment

Volusia CHD Epidemiology and Environmental Health (EH) staff interviewed the case using the Tri-Agency Foodborne Illness Survey/Complaint Form to gather a 72-hour food history and information about potential exposures. On June 20, a joint EH assessment of the restaurant was conducted by Volusia CHD EH and the Florida Department of Business and Professional Regulation.

Results

Epidemiologic Investigation

A single individual met the outbreak case definition. The case was a 50-year-old female Duval County resident who was staying at a local hotel. She consumed the Wednesday night special of steamed clams at the on-site restaurant on June 13. Around 30 minutes after consuming the clams, she began having tingling and numbness in the face, tunnel vision and vertigo, followed by loss of speech. She did not seek medical attention at the time; the symptoms began to subside shortly thereafter and were essentially gone within a couple of hours. She was dining with someone else but stated her dinner partner did not eat the clams and was fine. She contacted the FPICN the following day. Volusia CHD did not receive any other complaints or reports of similar illnesses linked to the implicated restaurant. There were no similar illnesses noted through ESSENCE-FL. A review of the foodborne complaint log did not identify any other recent complaints for this restaurant.

Laboratory Analysis

No meal remnants or specimens were available for analysis.

Environmental Assessment

The joint environmental assessment on June 20 did not identify any discrepancies that would have contributed to this incident of foodborne illness. There were no leftover clams from the batch served on the night of June 13. The steamed clams are not a routine menu item and are only served periodically as a nightly “special.” The shellfish tags were retrieved, and the clams were noted to have been harvested in Maquoit Bay, Brunswick, Maine, and were shipped on June 8. The shellfish tags were shared with the Florida Department of Agriculture and Consumer Services for further traceback. Although no harvest area closures were in effect for Maquoit Bay, Maine has a history of PSP in local waters. Restaurant management did not note any other complaints of illness.

Conclusions

The individual involved in this investigation rapidly developed symptoms consistent with PSP after consumption of steamed clams on June 13, 2018. Clams and other bivalve molluscan shellfish such as mussels and oysters are known to potentially contain saxitoxins, which are the cause of PSP.

Saxitoxins are neurotoxic alkaloids produced by dinoflagellates which are found in filter feeding mollusks such as clams, mussels and oysters. The toxins are not destroyed by cooking. Although most victims recover completely within 24 hours, some require immediate medical attention as death can occur through respiratory paralysis.

The strengths of this investigation were the inter-agency coordination required to assess the facility, coordination between Epidemiology and Environmental Health at the Volusia CHD, and the promptness of FPICN in notifying the county health department. A challenge in the investigation was the lack of food product or clinical specimen analysis to confirm the presence of saxitoxins.

Health Care-Associated Infections And Antimicrobial Resistance

Section 4

Section 4: HAIs and Antimicrobial Resistance

Health Care-Associated Infections Background

The Centers for Disease Control and Prevention (CDC) estimates that on any given day, 1 in 31 hospital patients has a Health Care-Associated Infection (HAI). Florida has a large system of health care facilities providing care to residents and visitors. There are 315 licensed inpatient hospitals with 213 having emergency departments. There are 473 ambulatory surgery centers, 694 nursing homes and 3,090 licensed assisted living facilities in Florida.

HAI Infection Control Assessment Responses (ICARs)

The CDC designed the Infection Control Assessment Response (ICAR) to assess a facility's capability to identify, isolate, inform, prepare for transport and provide care for persons with highly infectious diseases, such as Ebola. An ICAR program was started in Florida in 2017 to conduct non-regulatory infection control assessments in collaboration with all health care facilities. Assessments review infection control policies and conduct direct observations (e.g., hand hygiene, personal protective equipment, environmental cleaning, patient care, device reprocessing, etc.) Through the duration of the ICAR program, 77 ICARS were conducted by the county representative ICAR epidemiologist with help of the state ICAR epidemiologist. 18 of these ICARS were in response to an outbreak of multidrug-resistant organisms across multiple health care settings.

HAI Carbapenem-Resistant Enterobacteriaceae Collaborative

The HAI Prevention Program has been facilitating collaboratives since its start in 2010. Collaboratives serve as a way to engage health care facilities in infection prevention of important organisms. Facilities are provided with education and training, networking opportunities and on-site assessments. Through the data collected during collaboratives, FDOH is able to measure the impact of interventions and target regions needing further support.

Carbapenem-resistant Enterobacteriaceae (CRE) are a family of highly drug-resistant organisms that include *Klebsiella*, *Escherichia coli (E. coli)*, and *Enterobacter* species. CREs are considered an immediate public health threat that require urgent, aggressive action. The CDC estimates that these organisms cause 9,000 drug-resistant infections and 600 deaths per year. They are found in the normal gut flora and may cause urinary tract infections, wound infections, pneumonia, septicemia and meningitis. The goals of the CRE collaborative were to increase awareness and patient education on how to prevent CRE infections, improve detection and surveillance for CRE, determine prevalence of CRE in the Miami-Dade region, to improve communication between health care facilities and transport companies on preventing the spread of CRE and to promote antibiotic stewardship initiatives.

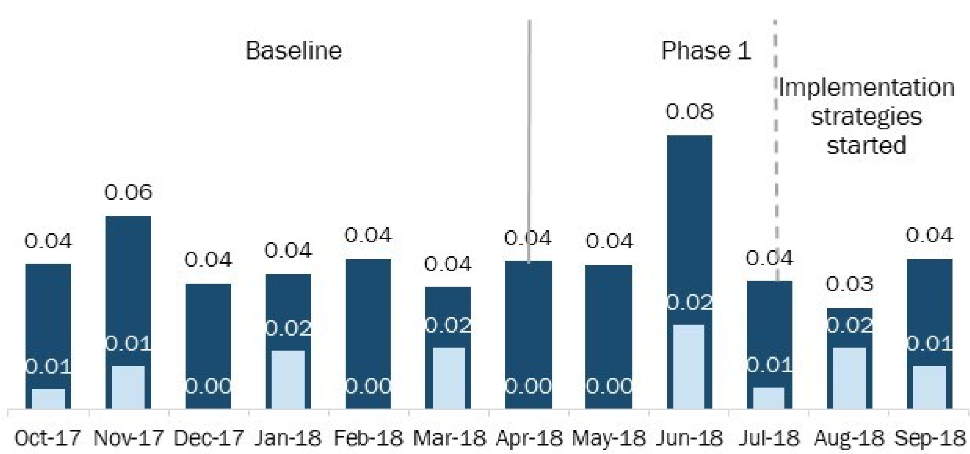
The overall CRE prevalence rate for the collaborative was 0.045 per 100 patient admissions, with the highest rate in June 2018 (0.081). The overall CRE admission prevalence rate was 0.01 per 100 patient admissions with the highest rate (0.025) seen in the month of June 2018.

CRE prevalence rate

Prevalence rate of patients who had CRE among any admission diagnosis.

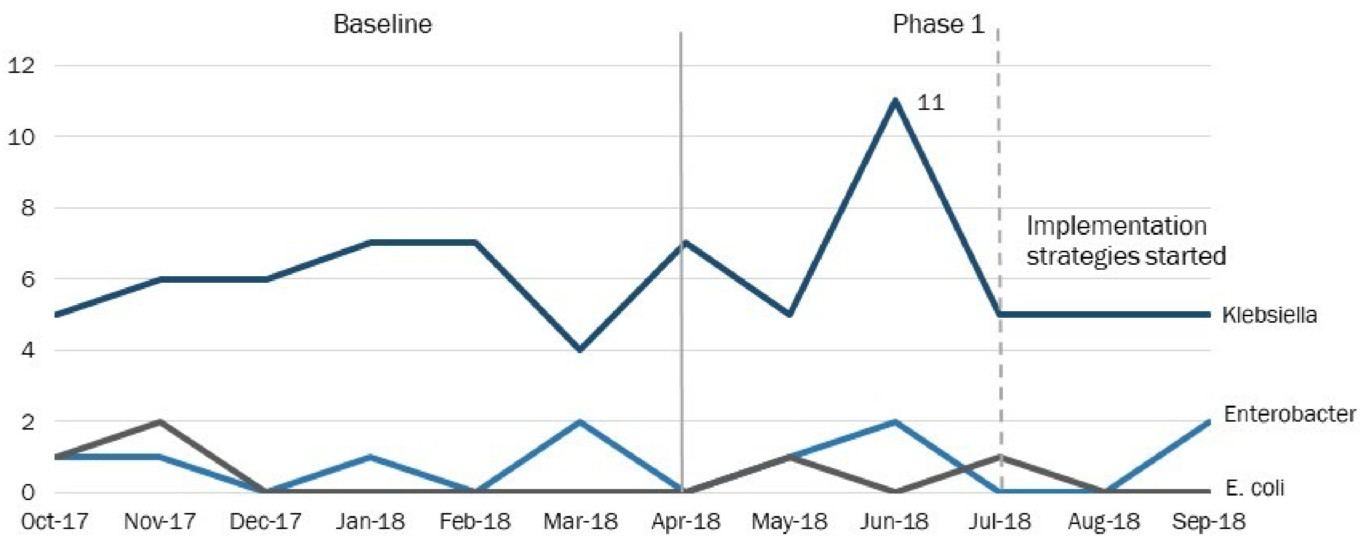
CRE admission prevalence rate

Prevalence rate of patients who were admitted for a CRE diagnosis.



The last month of data submitted for the collaborative was September 2018 which equaled a full year worth of data. ***Klebsiella*** **species were the most commonly reported** at both baseline and Phase 1 with a total of 73 infections while eight *Enterobacter* and seven *E.coli* infections were reported. The overall incidence density rate was 0.053 per 1,000 patient days with the highest rate seen in June 2018.

88 CRE infections were reported
55 infections were hospital-onset
33 infections were community-onset



Antimicrobial Resistance

Antimicrobial resistance is the ability of a microorganism to evade antimicrobial treatment. One reason microorganisms have become resistant to antibiotics is that they are often inappropriately used to treat infections with the wrong dose, duration or drug choice. Giving antibiotics to food animals can also foster resistance in bacteria. Infections caused by drug-resistant organisms are difficult to treat and often require extended hospital stays, treatment with more toxic drugs and increased medical costs.

Over the past few years, antimicrobial resistance has become an urgent public health threat affecting the health care, veterinary and agricultural industries, fueled by modern globalization. The HAI Prevention Program works with local, state and federal partners to implement containment strategies designed to stop the spread of antimicrobial-resistant organisms through early and aggressive action. Improving infection control practices, reducing overuse and improper use of antibiotics, tracking and reporting resistance rates, improving laboratory capacity and developing new drugs can reduce antimicrobial resistance. Surveillance data are used to identify occurrences of novel resistant organisms, analyze trends over time, target facilities for interventions to improve antibiotic prescribing and guide empiric therapy.

Case-based surveillance

Health care providers and laboratories must report antimicrobial resistance testing results to FDOH for:

- *Streptococcus pneumoniae* isolates from normally sterile sites, such as blood or cerebrospinal fluid
    - ◊ Only laboratories participating in electronic laboratory reporting (ELR) are required to submit such results for people ≥6 years old. All laboratories are required to submit test results for children <6 years old.
- *Staphylococcus aureus* isolates that are not susceptible to vancomycin
- *Mycobacterium tuberculosis*
    - ◊ Specimens for all tuberculosis cases must be forwarded to the FDOH Bureau of Public Health Laboratories (BPHL) for *M. tuberculosis* testing; all positive samples undergo a rapid test for isoniazid and rifampin resistance.
    - ◊ For information on *M. tuberculosis* resistance, see Section 1: Data Summaries for Common Reportable Diseases/ Conditions.

Section 4: HAIs and Antimicrobial Resistance

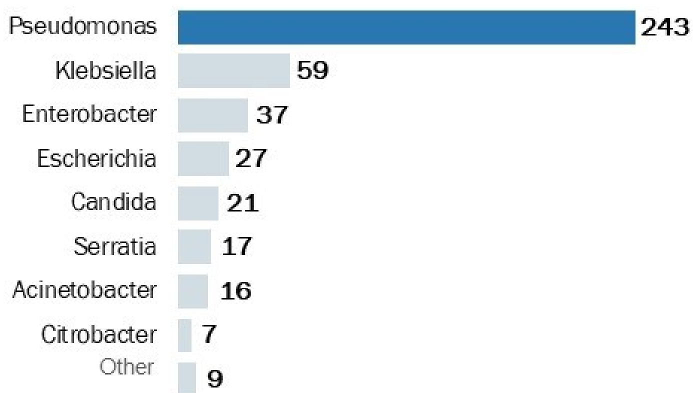
Laboratory Testing

To further improve surveillance and awareness of CRE, FDOH's BPHL expanded CRE testing capabilities to identify types of resistance mechanisms used by organisms. Carbapenemase production is a resistance mechanism of concern. A carbapenemase is an enzyme that breaks down carbapenem antibiotics and can be transferred between organisms. A variety of carbapenemases have been reported in the U.S. and in Florida—*Klebsiella pneumoniae* carbapenemase (KPC), Verona integron-encoded metallo-β-lactamase (VIM), New Delhi metallo-β-lactamase (NDM) and oxacillinase (OXA)-48-like.

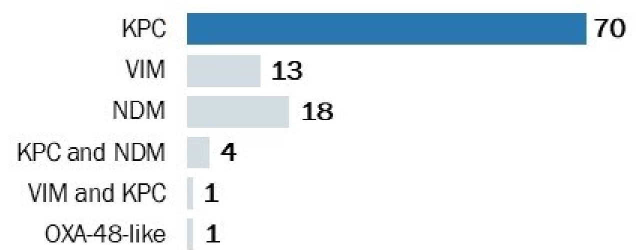
Electronic laboratory reporting (ELR) surveillance

All laboratories participating in ELR must report antimicrobial resistance testing results for all *Acinetobacter baumannii*, *Citrobacter* species, *Enterococcus* species, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Pseudomonas aeruginosa*, *Serratia* species and *S. aureus* isolates from normally sterile sites. Resistance results are processed electronically in the state's reportable disease surveillance system.

484 isolates tested by BPHL for CRE mechanism in 2018



25% of isolates tested were carbapenemase-producing



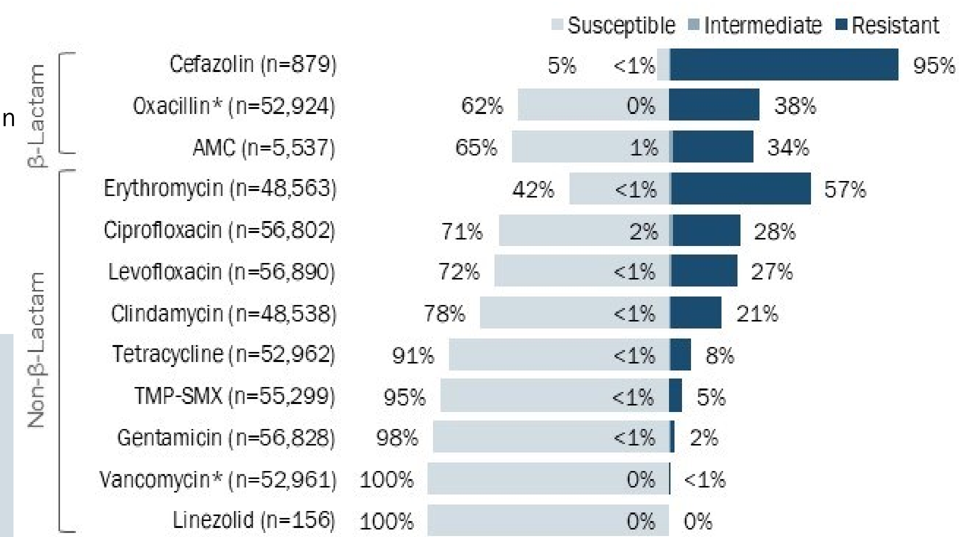
Antimicrobial Resistance Key Points

S. aureus species in 2018

58,355 isolates reported

38% resistant to oxacillin (i.e., MRSA). Susceptibility testing now done on oxacillin rather than methicillin.

0% resistant to vancomycin. Recommended first-line antibiotic when resistant to oxacillin.



AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*

Organism Facts

- Gram-positive bacterium, often part of body's normal flora, frequently found in nose, respiratory tract and on skin
- Leading cause of skin and soft tissue infections
- Transmitted via direct contact

Acinetobacter species in 2018

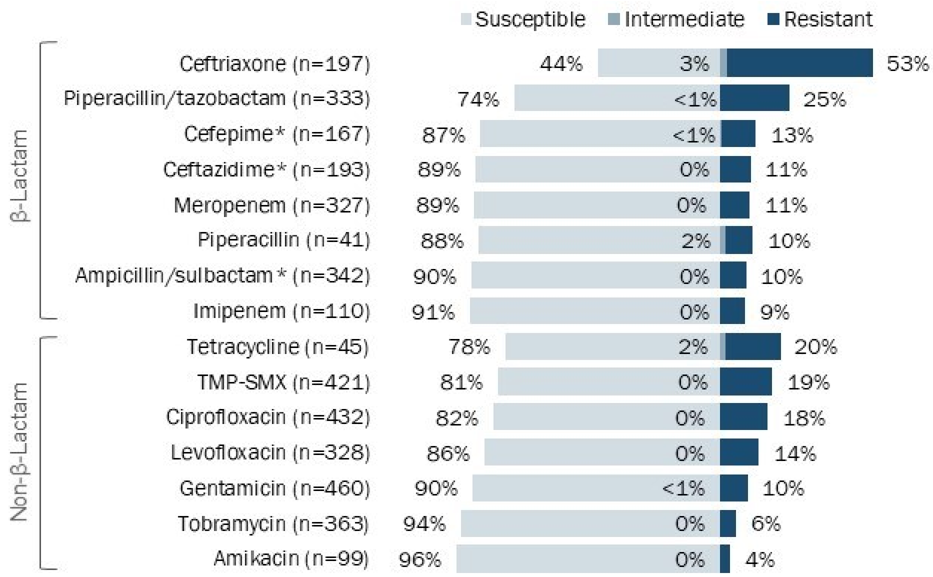
504 isolates reported

11% resistant to one or more carbapenems (doripenem, ertapenem, imipenem, meropenem)

10–13% resistant to recommended antibiotics (cefepime, ceftazidime, ampicillin/sulbactam)

Organism Facts

- Gram-negative bacteria, frequently found in soil and water; *A. baumannii* is most common species causing disease in humans
- Causes pneumonia, blood infections, meningitis, urinary tract infections, skin or wound infections
- Transmitted via direct contact



TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*
Note: indeterminate results not included in this figure

Streptococcus pnuemoniae species in 2018

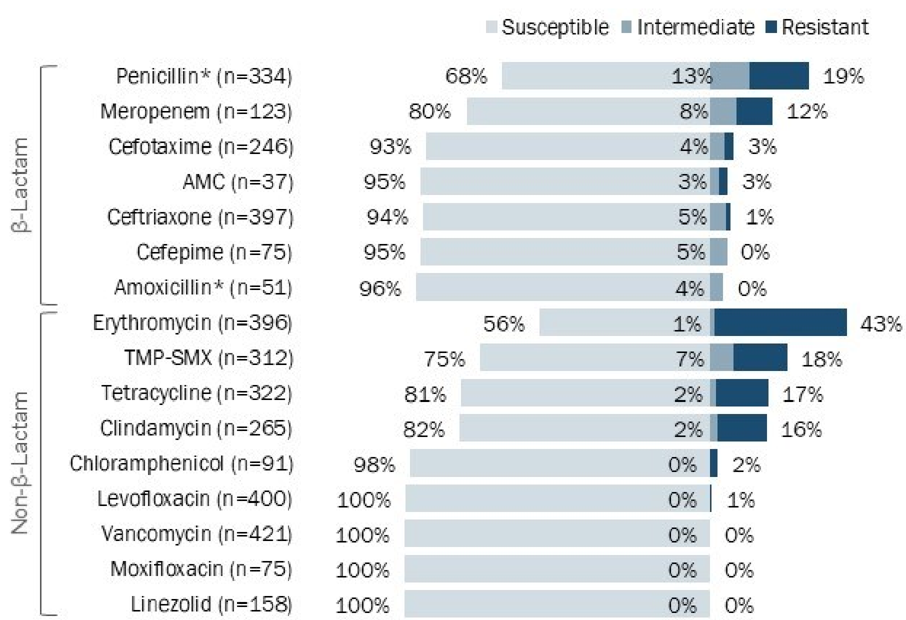
758 S. pneumoniae invasive disease cases reported

40% had isolates resistant to at least one antibiotic

19% resistant to penicillin and **0%** resistant to amoxicillin (recommended first-line antibiotics)

Organism Facts

- Gram-positive, facultative anaerobic bacterium
- Major cause of pneumonia and meningitis
- Transmitted via direct contact



AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*

Antimicrobial Resistance Key Points (Continued)

Escherichia coli in 2018

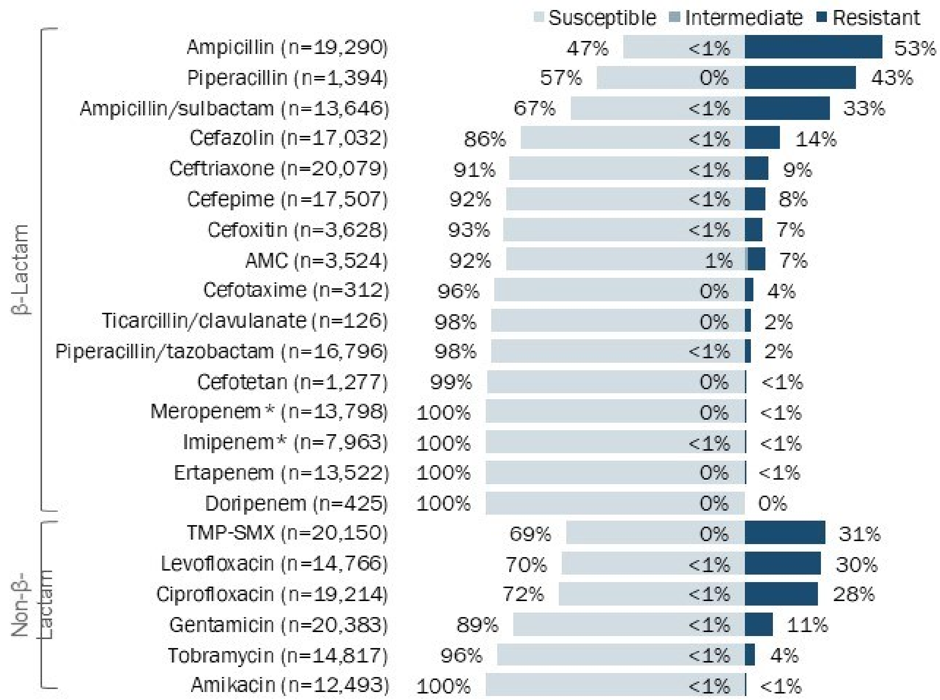
20,933 isolates reported

0.2% resistant to one or more carbapenems (i.e., CRE)

<1% resistant to imipenem or meropenem (recommended first-line antibiotics)

Organism Facts

- Gram-negative, facultative aerobic bacterium, frequently found in lower intestine
- Cause of food poisoning, pneumonia, breathing problems, and urinary tract infections
- Transmitted via fecal-oral route



AMC=amoxicillin/clavulanate

TMP-SMX=trimethoprim/sulfamethoxazole

*Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018* Note: indeterminate results not included in this figure

***Klebsiella* species in 2018**

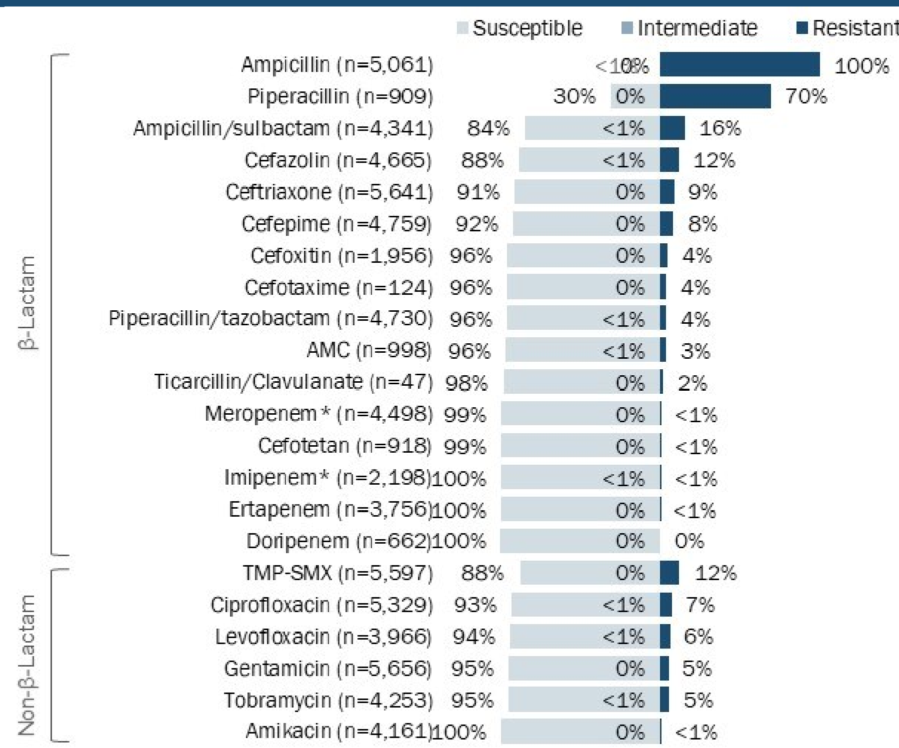
5,908 isolates reported

0.8% resistant to one or more carbapenems (i.e., CRE)

<1% resistant to imipenem or meropenem (recommended first-line antibiotics)

Organism Facts

- Ubiquitous, gram-negative bacteria; *K. oxytoca* and *K. pneumoniae* are most common species causing disease
- Causes food poisoning, pneumonia, breathing problems, urinary tract infections
- Transmitted via direct contact



AMC=amoxicillin/clavulanate

TMP-SMX=trimethoprim/sulfamethoxazole

* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018* Note: indeterminate results not included in this figure

Antimicrobial Resistance Key Points (Continued)

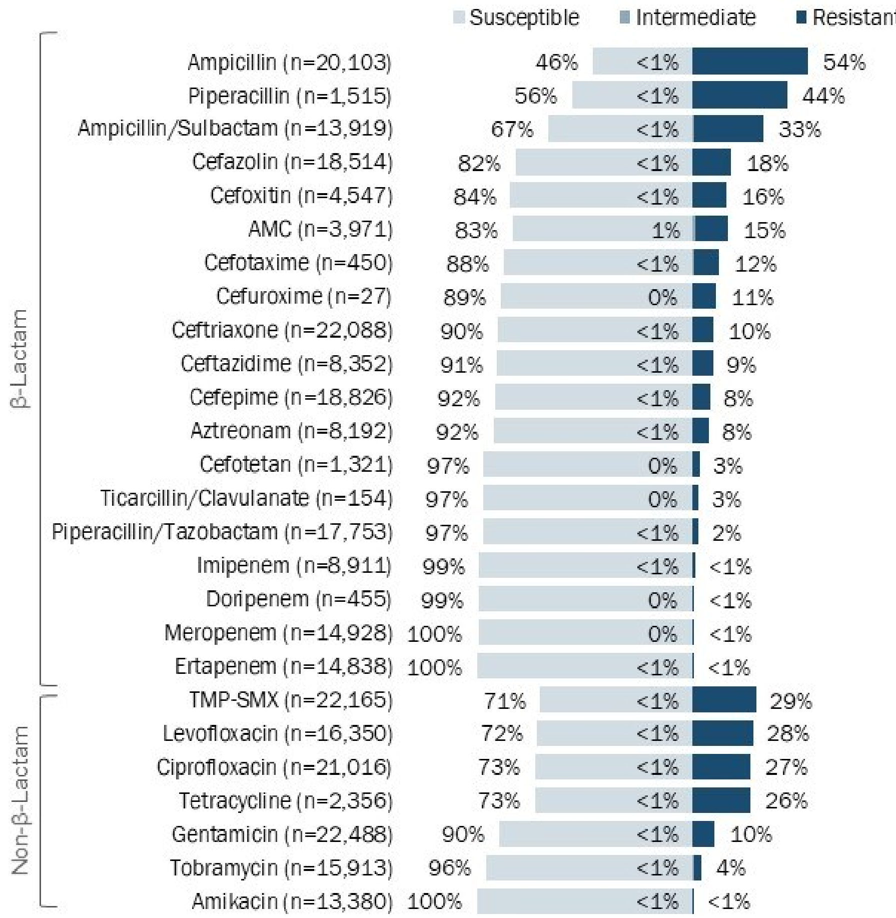
Enterobacteriaceae in 2018

28,166 isolates reported

0.6% resistant to carbapenem (i.e., CRE)

Organism Facts

- Family of bacteria that includes *Escherichia coli*, *Klebsiella pneumoniae*, *Salmonella* species and *Shigella* species
- Often occur in health care settings in patients who require devices or antibiotic therapy
- Transmission depends on organism



AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*
Note: indeterminate results not included in this figure

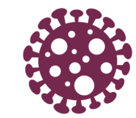
Non-Reportable Diseases and Conditions

Section 5

Acute Flaccid Myelitis

Since 2014, cases have only been observed in even-numbered years.

92% of cases were <19 years old.



There is currently no known cause of acute flaccid myelitis.

Background

Acute flaccid myelitis (AFM) is a syndrome characterized by rapid onset of flaccid weakness in one or more limbs and distinct abnormalities of the spinal cord gray matter on magnetic resonance imaging. AFM is a subtype of acute flaccid paralysis, which includes paralytic poliomyelitis, acute transverse myelitis, Guillain-Barré syndrome and muscle disorders. Among the AFM cases classified at the national level by the Centers for Disease Control and Prevention (CDC) between 2014–2018, the majority (>90%) had a mild respiratory illness or fever before the onset of limb weakness.

Person under investigation (PUI): an individual whose case has been submitted to the CDC for classification.

Case: CDC classifies cases as confirmed or probable.

Summary	2014–2018
Number of cases	13
5-year trend	
Case Classification	
Confirmed	11
Probable*	2
Sex	
Male	7
Female	5
Unknown	1
Race	
White	7
Black	3
Unknown	3
Ethnicity	
Non-Hispanic	7
Hispanic	1
Unknown	5

*Probable case classification first implemented in 2017

Surveillance

Florida has conducted enhanced surveillance for AFM since 2014 when an increase in cases was noted. Surveillance was established in 2015 to monitor this syndrome after the Council of State and Territorial Epidemiologists adopted a standardized case definition.

Hospitals report potential AFM persons under investigation (PUIs) to their county health departments, who in turn notify the state health department. Medical records are reviewed at the state health department by a physician and forwarded to the CDC for classification if there is no alternate diagnosis and if disease presentation is consistent with AFM. Due to the complexity of the syndrome, AFM PUIs are reviewed and classified by an expert panel of neurologists at the CDC.

Laboratory Testing

When specimens are available, enterovirus testing is performed for AFM PUIs at the Department of Health's Bureau of Public Health Laboratories and the CDC. Of the 13 AFM cases from 2014–2018, enterovirus testing was completed on 11. Of the 11 cases, 3 were positive for enteroviruses. Two were positive for enterovirus D68 in 2016, and one for enterovirus A71 in 2018. Although AFM PUI specimens are tested for enteroviruses, to date there are no confirmed causal links between enteroviruses and AFM.

For more information on AFM, visit the CDC's AFM webpage at cdc.gov/acute-flaccid-myelitis/index.html. For national case data, visit cdc.gov/acute-flaccid-myelitis/cases-in-us.html.

Section 5: Non-Reportable Diseases and Conditions

Influenza and Influenza-Like Illness

Background

Influenza causes an estimated 9.3–49 million illnesses annually in the U.S., with 140,000–960,000 of those resulting in hospitalization and 12,000–79,000 resulting in death. The best way to prevent influenza infection, and its potentially severe complications, is to get vaccinated each year.

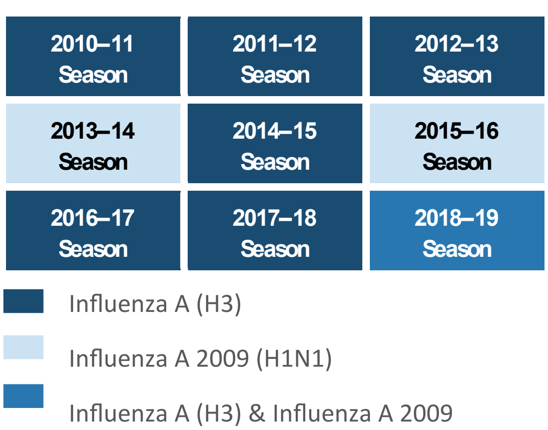
Influenza A and B viruses routinely spread among the human population and are responsible for seasonal influenza epidemics each year. Influenza A viruses are more commonly associated with the ability to cause epidemics or pandemics than influenza B viruses. Over the course of an influenza season, several different influenza A and B viruses will circulate and cause illness, but there is typically a predominant strain, which varies by season.

Disease Facts

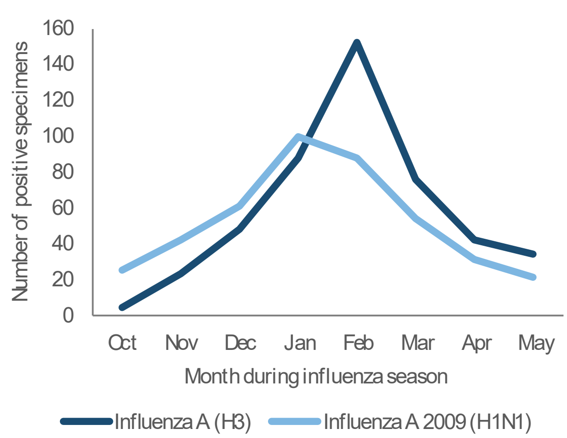
- **Caused** by influenza viruses
- **Illness** is respiratory, including fever, cough, sore throat, runny or stuffy nose, muscle/body aches, headache, fatigue
- **Transmitted** person-to-person by direct contact with respiratory droplets from nose or throat of infected person
- **Under surveillance** to detect changes in influenza virus to inform vaccine composition, identify unusually severe presentations of influenza, detect outbreaks and determine the onset, peak and wane of the influenza season to assist with influenza prevention

Influenza activity in Florida and nationally can vary widely from season to season, underscoring the importance of robust influenza surveillance. The Department conducts regular surveillance of influenza and influenza-like illness (ILI) using a variety of surveillance systems, including laboratory-based surveillance and syndromic surveillance. Florida's syndromic surveillance system, ESSENCE-FL, collects chief complaint data from emergency departments and urgent care centers. During the 2018–19 influenza season, 354 facilities submitted data to ESSENCE-FL, accounting for 99% of all emergency department visits in Florida. Individual cases of influenza are not reportable in Florida, except for novel influenza (new subtypes of influenza) and influenza-associated pediatric deaths. All outbreaks, including those due to influenza or ILI, are reportable in Florida. The Department produces a weekly report during influenza season (October through May) and a biweekly report during the other months. These reports summarize influenza and ILI surveillance information and are available at FloridaHealth.gov/FloridaFlu.

In recent seasons, influenza A (H3) or influenza A 2009 (H1N1) has predominated in Florida. The 2018–19 season is the first in recent years with nearly equal circulation of influenza A (H3) and influenza A 2009 (H1N1). Seasons where influenza A (H3) predominates are typically associated with increased morbidity and mortality, particularly in adults ≥65 years old and children ≤4 years old. Seasons where influenza A 2009 (H1N1) predominates have been associated with increased morbidity and mortality in young adults.



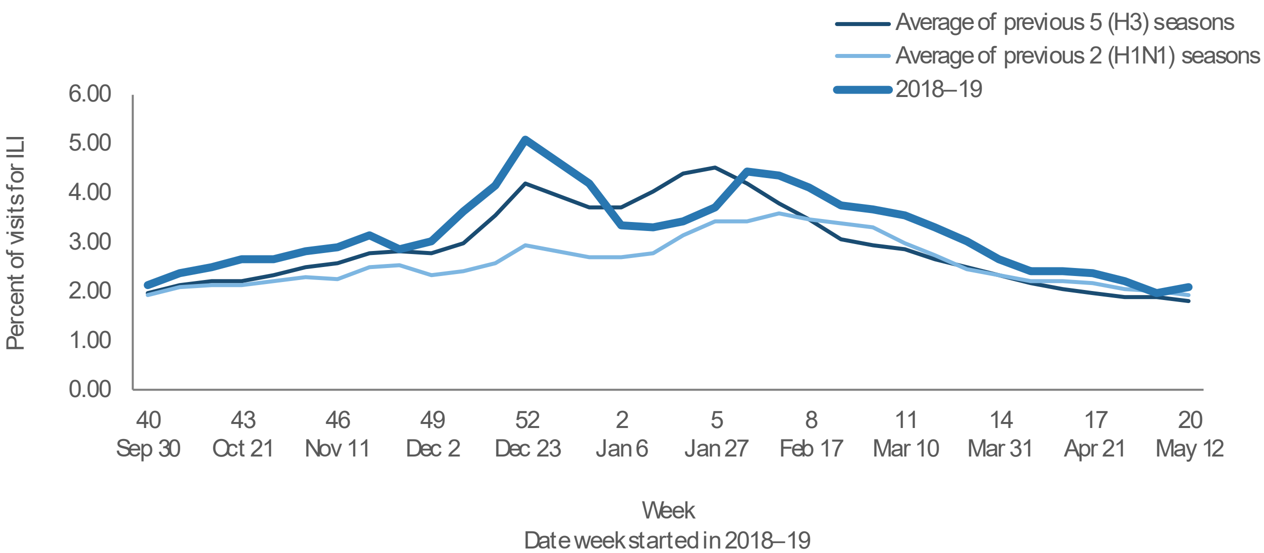
Two notable waves in influenza activity were observed in Florida during the 2018–19 season: influenza A 2009 (H1N1) circulated from October to late January and influenza A (H3) circulated from February through May. Limited circulation of influenza B viruses was observed at the beginning and end of the season, with influenza B Yamagata lineage viruses circulating in October and influenza B Victoria lineage viruses in May. Overall, there was less influenza B activity observed during the 2018–19 season compared to recent seasons.



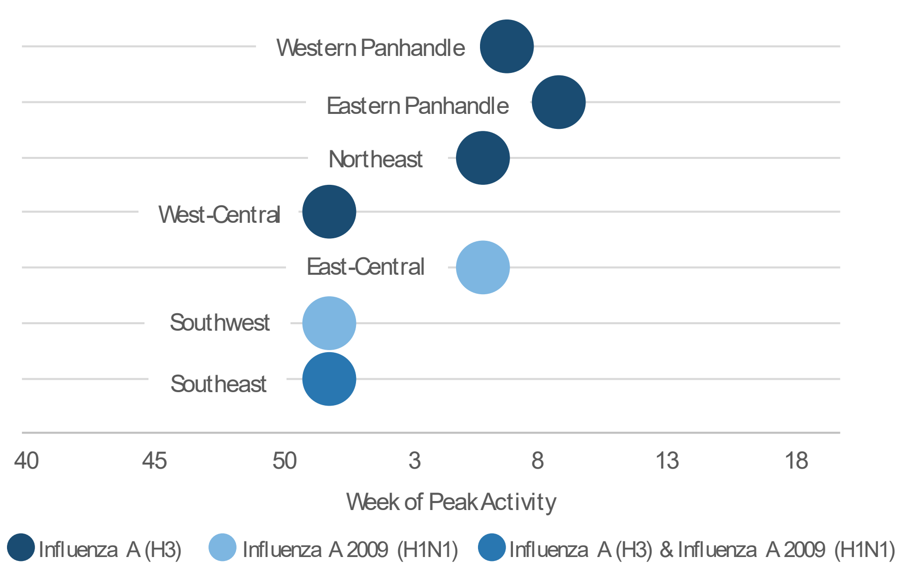
Section 5: Non-Reportable Diseases and Conditions

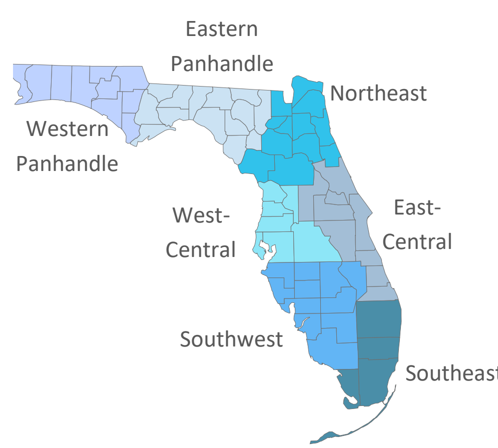
While a predominant strain is typically identified during most influenza seasons, nearly equal circulation of influenza A (H3) viruses and influenza A 2009 (H1N1) viruses was observed both nationally and in Florida. In Florida, a slightly higher proportion of influenza A viruses were subtyped as influenza A (H3) (52.3% compared to 47.7% subtyped as influenza A 2009 [H1N1]). At the national level, a slightly higher proportion of influenza A viruses were subtyped as influenza A 2009 (H1N1) (56.6% compared to 43.6% influenza A [H3]).

Peak activity occurred as early as week 52 (beginning December 23, 2018) in Florida's west-central and southeast regions and as late as week 9 (beginning February 24, 2019) in the eastern Panhandle region. Varying regional activity patterns heavily impacted the statewide trend.



Differences within Florida's seven surveillance regions were observed. Influenza A (H3) viruses predominated in four regions, influenza A 2009 (H1N1) viruses predominated in two regions, and an even split in influenza A (H3) and influenza A 2009 (H1N1) circulation was observed in the remaining region. In general, mixed circulation was observed statewide, with slightly more influenza A (H3) observed in Florida's northern regions. The regional differences in predominantly circulating strain may also be reflective of the timing of peak activity in each of these regions.



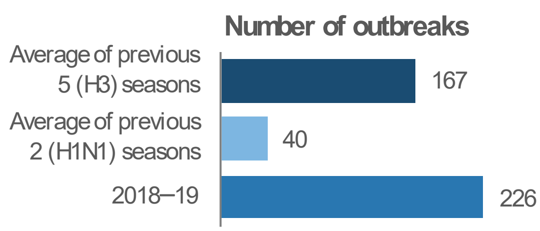


The influenza reporting year is defined by standard weeks outlined by the CDC, where every year has 52 or 53 weeks; there were 52 weeks in the 2018–19 season.

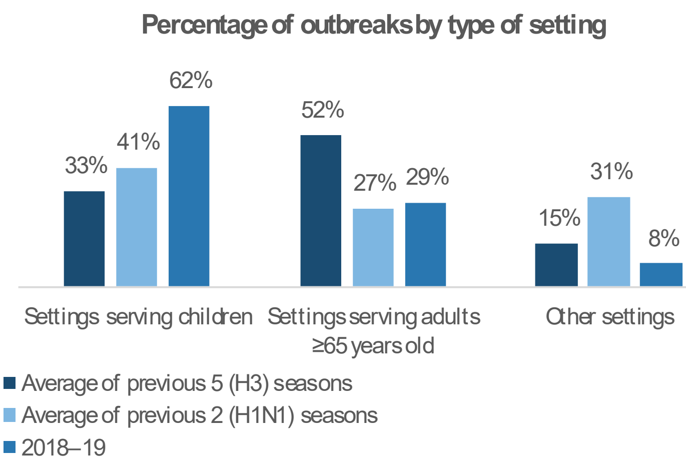
Section 5: Non-Reportable Diseases and Conditions

Outbreaks

More outbreaks were reported during the 2018–19 season (226) compared to the average number reported in previous H1N1 or H3 seasons. The previous two H1N1 seasons averaged 40 outbreaks, and the previous five H3 seasons averaged 167 outbreaks. The number of outbreaks reported and the types of outbreak settings vary each season and often serve as indicators of disease severity and population affected. During the 2018–19 season, the majority of outbreaks (92%) were reported in facilities serving people at higher risk for complications from influenza infection (children and adults ≥65 years old), which is consistent with past seasons (both those dominated by influenza A 2009 [H1N1] and those dominated by influenza A [H3]). Settings that serve these groups include child daycares, school/camps, assisted living facilities, nursing facilities and other long-term care facilities.



The largest proportion of the 226 influenza or ILI outbreaks reported during the 2018–19 season occurred in facilities serving children (62%). This is consistent with previous seasons that were dominated by influenza A 2009 (H1N1), where most outbreaks were also reported in facilities serving children. In contrast, a higher proportion of outbreaks were reported in facilities serving adults ≥65 years old in past influenza A (H3)-dominant seasons. A total of 17 other non-influenza respiratory disease outbreaks were also reported during the 2018–19 season.



Influenza-Associated Intensive Care Unit Admissions

In response to sharp increases in influenza activity in February 2018 during the 2017–18 influenza season, the Department requested that hospitals report all influenza-associated intensive care unit (ICU) admissions in Florida residents aged <65 years to identify unusually severe presentations of influenza. This enhanced surveillance was continued during the 2018–19 influenza season on an optional basis for county health departments. A total of 34 (51%) counties reported influenza-associated ICU admissions during the 2018–19 season.

- 297 influenza-associated ICU admissions were reported.
- Almost half (41%) of people admitted were ≤45 years old.
- Most (86%) people admitted had underlying medical conditions.
- Most (73%) people admitted had not received current influenza vaccine (of the 135 people with known vaccination status).

Deaths

Influenza-associated deaths in children <18 years old are reportable in Florida. In past seasons, the number of deaths reported ranged from 2 to 11. Influenza-positive specimens collected from children who die frequently go untyped, and given the small number deaths each year, it is difficult to interpret how pediatric mortality might be affected by strain.

- Six deaths were reported in children during the 2018–19 season.
- Five had not received seasonal influenza vaccination and one was partially vaccinated.*
- Three of the six children had known underlying health conditions.

*The Advisory Committee on Immunization Practices (ACIP) recommends children aged 6 months to 8 years receive two doses of influenza vaccine administered a minimum of four weeks apart during their first season of vaccination for optimal protection. The Department refers to children in this age group who did not receive a second influenza vaccine as “partially vaccinated.” To learn more about the ACIP’s 2018–19 recommendations, please visit: cdc.gov/mmwr/volumes/67/rr/rr6703a1.htm.

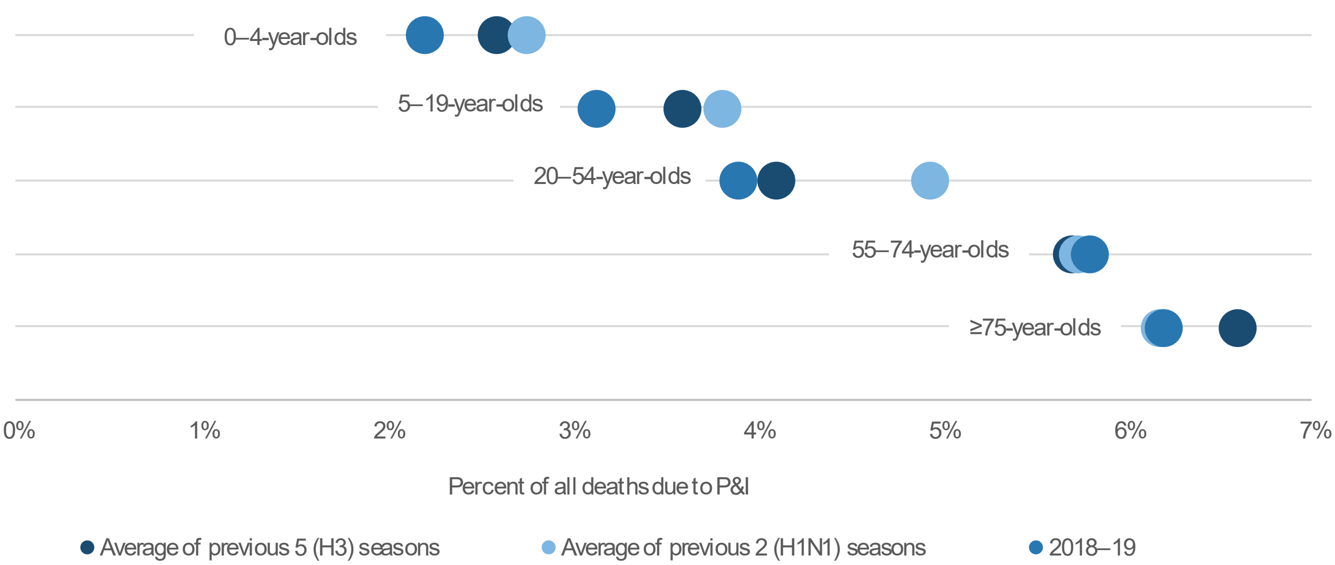
Section 5: Non-Reportable Diseases and Conditions

Although not individually reportable, pneumonia and influenza (P&I) deaths in people of all ages are monitored by reviewing death certificate data. Estimating the number of deaths due to influenza is challenging because:

- Influenza is not frequently listed on the death certificates of persons who die from influenza-related complications.
- Many influenza-related deaths occur one to two weeks after a person's initial infection, often due to development of secondary bacterial infection (e.g., pneumonia) or because infection aggravated an existing chronic illness (e.g., congestive heart failure, chronic obstructive pulmonary disease).
- Many people who die from influenza are never tested.

For these reasons, influenza deaths are estimated using P&I deaths.

During the 2018–19 influenza season, deaths due to P&I were lower than previous seasons in children and young adults (≤19 years old). Compared to influenza (H1N1) seasons, (H3) seasons tend to have lower mortality in young and middle-aged adults (20–54 years old) and higher mortality in elderly adults (≥75 years old).



References:

Centers for Disease Control and Prevention. Disease Burden of Influenza. www.cdc.gov/flu/about/disease/burden.htm. Accessed September 3, 2019.

Xiyan X, Blanton L, Abd Elal AI, Alabi N, Barnes J, Biggerstaff M, et al. Update: Influenza activity in the United States during the 2018–19 season and composition of the 2019–20 influenza vaccine. Morbidity and Mortality Weekly Report. 2019; 68 (24):544-551. doi: 10.15585/mmwr.mm6824a3. Available at cdc.gov/mmwr/volumes/68/wr/mm6824a3.htm.

Section 5: Non-Reportable Diseases and Conditions

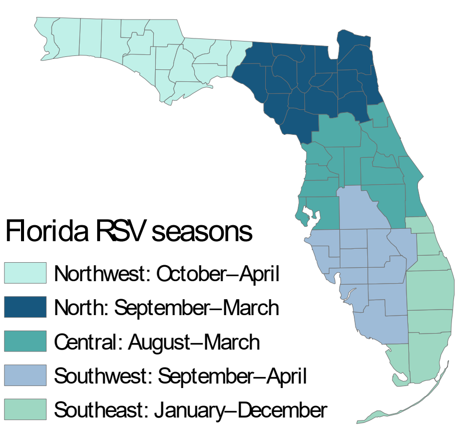
Respiratory Syncytial Virus

Background

Respiratory syncytial virus (RSV) is a common respiratory virus that primarily infects young children. Children <5 years old and older adults are at increased risk of hospitalization for complications due to RSV infection. An estimated 57,000 children in the U.S. will be hospitalized within their first five years of life due to RSV infection. RSV infection is the most common cause of bronchiolitis (inflammation of small airways in the lungs) and pneumonia in infants <1 year old.

In the U.S., RSV activity is most common during the fall, winter and spring months, though activity varies in timing and duration regionally. RSV activity in Florida typically peaks between November and January, with an overall decrease in activity during the summer months. Although summer months typically have less RSV activity overall, RSV season in southeast Florida is considered year-round based on laboratory data.

The Department established regular RSV seasons based on the first two consecutive weeks during which the average percentage of specimens that test positive for RSV at hospital laboratories is 10% or higher. Southeast Florida's season is year-round.



Disease Facts

Caused by respiratory syncytial virus

Illness is respiratory, including fever, cough and runny nose; can cause severe symptoms like wheezing or difficulty breathing, especially in children with underlying health conditions

Transmitted person-to-person by direct contact with respiratory droplets from nose or throat of infected person

Under surveillance to support clinical decision-making for prophylaxis of at-risk children

The determination of unique seasonal and geographic trends of RSV activity has important implications for prescribing patterns for initiating prophylaxis in children considered at high risk for complications due to RSV infection. The 2018 American Academy of Pediatrics Red Book recommends that preapproval for prophylactic treatment for these children be made based on state surveillance data. This recommendation, in conjunction with Florida's unique RSV seasons, led to the implementation of statewide surveillance for RSV to support clinical decision-making for prophylaxis of at-risk children. Palivizumab is an antibody used as prophylaxis to reduce the risk of RSV infection, but it is not a treatment for current infection. Palivizumab is administered in five monthly doses and provides protection for six months, beginning at the time of the first administered dose. The timing of RSV season in Florida influences the timing of palivizumab administration and the pre-approval of prophylactic treatment, underscoring the importance of RSV surveillance in Florida.

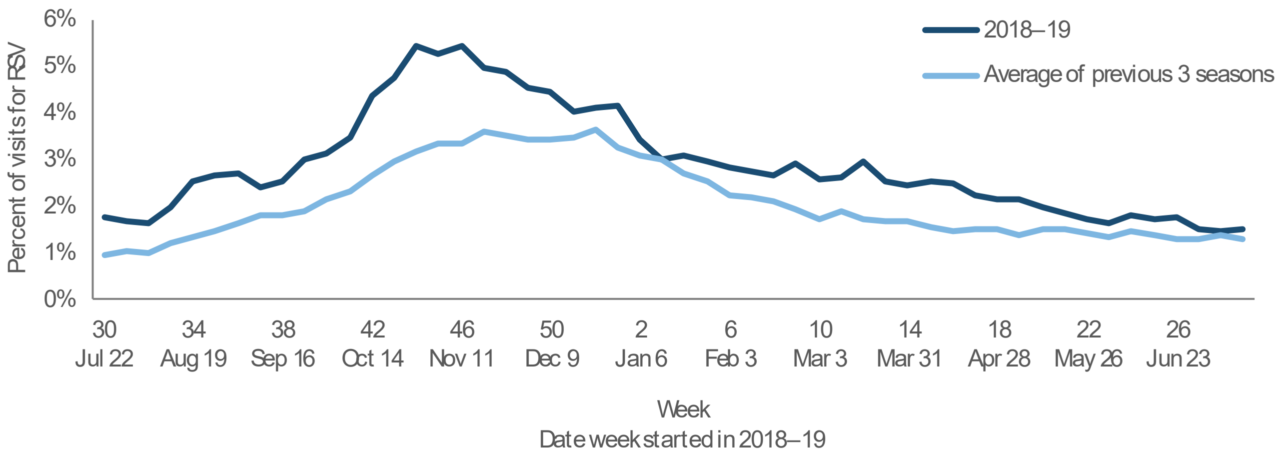
Florida's syndromic surveillance system, ESSENCE-FL, collects chief complaint and discharge diagnosis data from nearly all of Florida's emergency departments (EDs) and some urgent care centers (UCCs). These data are used to monitor trends in visits to EDs and UCCs where RSV or RSV-associated illness are included in the discharge diagnosis. The National Respiratory and Enteric Virus Surveillance System (NREVSS) is a voluntary, laboratory-based surveillance system through which participating laboratories report RSV test results. Data from NREVSS and validated electronic laboratory reporting data are also used to monitor temporal patterns of RSV.

Florida produces a weekly RSV report as part of a larger respiratory disease surveillance report during the influenza season (October through May) and a biweekly report during the other months that summarizes RSV surveillance data. These reports are available at FloridaHealth.gov/RSV.

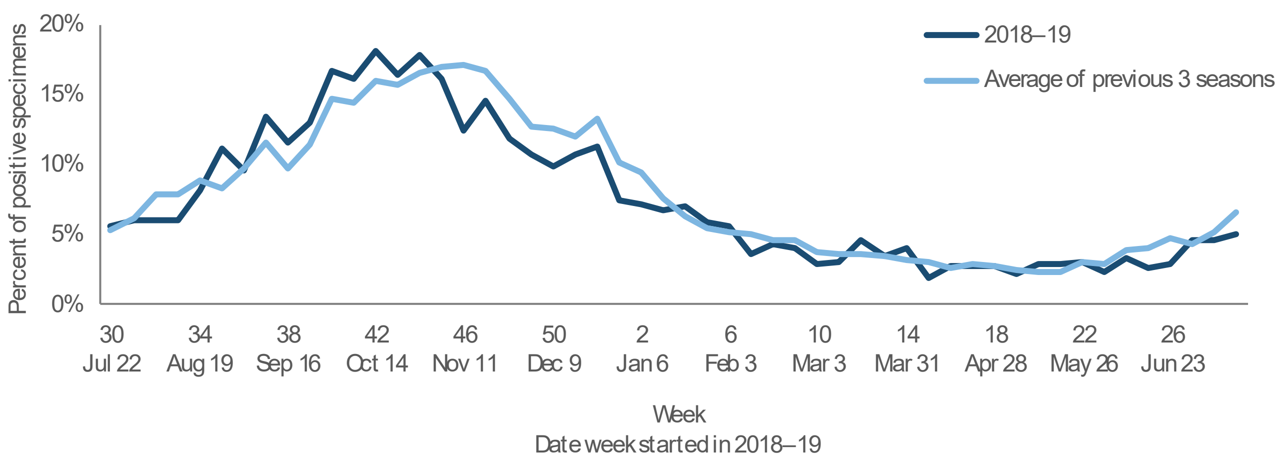
Section 5: Non-Reportable Diseases and Conditions

General Trends

During the 2018–19 RSV season in Florida, the percentage of children <5 years old diagnosed with RSV at EDs and UCCs in ESSENCE-FL increased steadily starting in September, peaked in November, and remained elevated through March. Activity was higher during the 2018–19 season compared to an average of the previous three seasons for each week during the entire surveillance period.



Laboratory surveillance data for RSV (percentage of specimens testing positive for RSV) peaked in mid-October. Laboratory data include results for people of all ages, whereas the ED and UCC RSV diagnosis data are limited to children <5 years old. This likely accounts for the difference in patterns observed between these two data sources.



References:

American Academy of Pediatrics. Respiratory Syncytial Virus. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. Red Book: 2018 Report of the Committee on Infectious Diseases. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018:682-692

Centers for Disease Control and Prevention. RSV in Infants and Young Children. www.cdc.gov/rsv/high-risk/infants-young-children.html. Accessed September 4, 2019.

The RSV year is defined by standard reporting weeks as outlined by the Centers for Disease Control and Prevention, where every season has either 52 or 53 weeks; there were 52 weeks in 2018. In Florida, surveillance for RSV is conducted year-round, beginning in week 30 (July 22, 2018) and ending in week 29 of the following year (July 20, 2019).

Cancer

Section 6

Section 6: Cancer

Cancer Key Points

120,431

Primary cancers diagnosed in Florida in 2016

Cancer rate per 100,000 population increased from 408 to 435 from 1981 to 2016

60% of newly diagnosed cancers in 2016 in Florida were in adults ≥65 years old

Background

The term cancer covers many diseases that share the common feature of abnormal cell growth. It can occur in almost any part of the body. Early detection through routine health and cancer screenings and timely quality treatment and care may improve prognosis and survival. Each type of cancer develops differently and has different risk factors. For example, the main risk factor for lung cancer is cigarette smoking, but for skin cancer it is sun exposure. The causes of some common cancers, such as breast cancer, remain unknown; however, age is the number one risk factor for all cancer types.

Reporting and Surveillance

Section 385.202, Florida Statutes requires all hospitals and outpatient facilities licensed in Florida to report to the Department each patient diagnosed or treated for cancer. Information to be reported on each patient includes routine personal and demographic data, diagnosis, stage of disease at diagnosis, medical history, laboratory data, tissue diagnosis and initial course of treatment. Cancer incidence data are collected, verified and maintained by the Florida Cancer Data System (FCDS), Florida's statewide cancer registry. The FCDS is administered by the Department of Health's Public Health Research Section and operated by the Sylvester Comprehensive Cancer Center at the University of Miami Leonard M. Miller School of Medicine. The FCDS is used by the state and its partners to monitor the occurrence of cancer incidence, aid in research studies to reduce cancer morbidity and mortality, focus cancer control activities and address public questions and concerns regarding cancer.

The FCDS began operations with a pilot project for cancer registration in 1980 and commenced statewide collection of cancer incidence data (i.e., new cancer cases) from all Florida hospitals in 1981. The FCDS now collects incidence data from hospitals, freestanding ambulatory surgical centers, radiation therapy facilities, pathology laboratories and private physician offices. Each facility, laboratory and practitioner is required to report to the FCDS within six months of each diagnosis and within six months of the date of each treatment. Consequently, there is an inherent time lag of one to two years in the release of cancer registry data for surveillance activities and publications. At the time this report was published, the most recent FCDS data available were from 2016.

For more information about the burden of cancer in Florida, see the Florida Annual Cancer Report, an epidemiological series available on the FCDS web site at https://fcds.med.miami.edu/inc/publications.shtml.

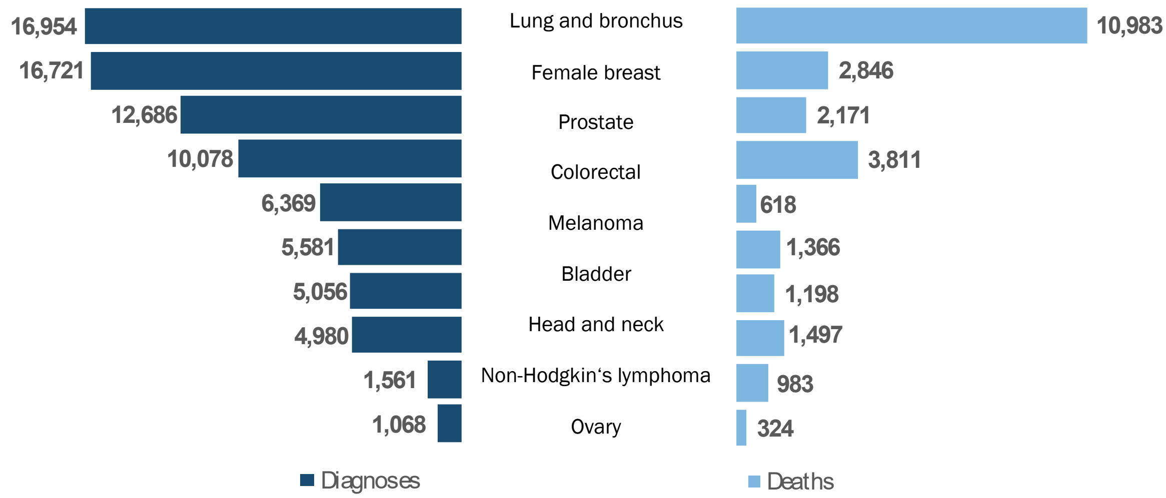
General Trends for 2016

During 2016, physicians diagnosed 120,431 primary cancers (i.e., the site or organ where the cancer starts) among Floridians, an average of 330 new diagnoses per day. The overall rate of occurrence for all cancers combined in the state has increased from 407.8 new diagnoses per 100,000 in 1981 to 434.8 new diagnoses per 100,000 in 2016. However, this has not been a steady increase as cancer patterns vary year to year. Cancer occurs predominantly among older people as age is the top risk factor. Among the newly diagnosed cancers in 2016, 60% occurred in people ≥65 years old; this age group accounted for 19% of Florida's 2016 population.

Section 6: Cancer

The most common cancers in Floridians were lung and bronchus (14%), female breast (14%), prostate (11%) and colorectal (10%). These accounted for 52% of all new cases in blacks and 46% of all new cases in whites.

New cancer diagnoses and deaths in Florida in 2016

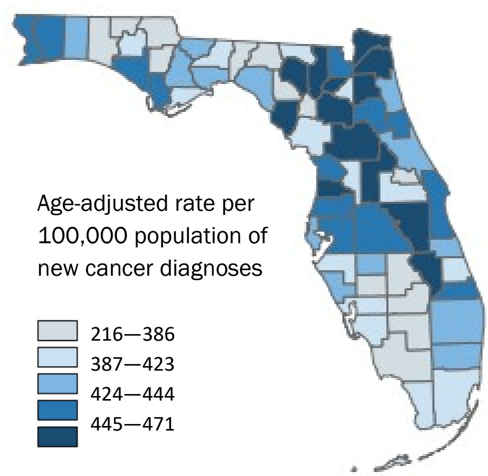


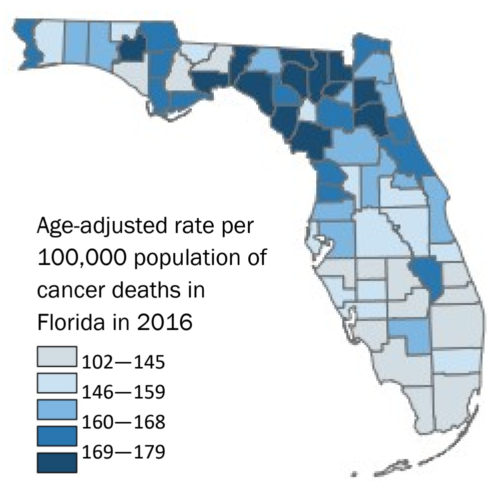
Collectively, the number of new cancer cases and deaths that occurred in Miami-Dade, Broward, Palm Beach, Hillsborough and Pinellas counties accounted for approximately 38% of new cancer diagnoses and 36% of cancer deaths in Florida during 2016.

Characteristic	All Cancer Diagnoses	All Cancer Deaths
Florida	**120,431**	**43,653**
Sex		
Female	58,702	20,111
Male	61,691	23,542
Race		
Black	12,628	4,620
White	101,574	38,027
Sex and race		
Black female	6,491	2,343
White female	49,465	17,269
Black male	6,134	2,277
White male	52,078	20,758

Cancer remains the second leading cause of death in Florida with over 43,000 cancer deaths occurring in 2016. In years of potential life lost up to age 75, cancer ranks first, surpassing heart disease and stroke combined and unintentional injuries.

For all cancers combined, the Florida age-adjusted rate of occurrence for new cancer cases was 434.8 per 100,000 population and 148.9 per 100,000 population for cancer-related deaths.





Section 6: Cancer

Cancer Appendix: 2016 Data

Number of new cancer diagnoses by sex and race in Florida in 2016

Characteristic	All Cancers	Lung and Bronchus	Female Breast	Prostate	Colorectal	Melanoma
Florida	**120,431**	**16,954**	**16,721**	**12,686**	**10,078**	**6,369**
Sex						
Female	58,702	8,010	16,721	NA	4,765	2,285
Male	61,691	8,937	NA	12,686	5,310	4,083
Race						
Black	12,628	1,356	1,991	2,002	1,199	–
White	101,574	15,090	13,910	9,492	8,397	6,369
Sex and race						
Black female	6,491	573	1,991	NA	590	–
White female	49,465	7,227	13,910	NA	3,954	2,285
Black male	6,134	783	NA	2,002	609	–
White male	52,078	7,857	NA	9,492	4,440	4,083

Number of new cancer diagnoses by sex and race in Florida in 2016 (continued)

Characteristic	Bladder	Head and Neck	Non-Hodgkin's Lymphoma	Ovary	Cervix
Florida	**5,581**	**5,056**	**4,980**	**1,561**	**1,068**
Sex					
Female	1,313	1,257	2,239	1,561	1,068
Male	4,267	3,799	2,739	NA	NA
Race					
Black	264	422	437	158	207
White	4,789	4,408	4,308	1,340	799
Sex and race					
Black female	82	116	192	158	207
White female	1,091	1,082	1,908	1,340	799
Black male	182	306	244	NA	NA
White male	3,697	3,326	2,399	NA	NA

Number of cancer deaths by sex and race in Florida in 2016

Characteristic	All Cancers	Lung and Bronchus	Female Breast	Prostate	Colorectal	Melanoma
Florida	**43,653**	**10,983**	**2,846**	**2,171**	**3,811**	**618**
Sex						
Female	20,111	4,948	2,846	NA	1,760	182
Male	23,542	6,035	NA	2,171	2,051	436
Race						
Black	4,620	840	420	340	518	–
White	38,027	9,942	2,344	1,797	3,205	618
Sex and race						
Black female	2,343	348	420	NA	262	–
White female	17,269	4,511	2,344	NA	1,456	182
Black male	2,277	492	NA	340	256	–
White male	20,758	5,431	NA	1,797	1,749	436

-- Counts for cells with <10 cases are suppressed

NA Not applicable for gender-specific cancer types

Number of cancer deaths by sex and race in Florida in 2016 (continued)

Characteristic	Bladder	Head and Neck	Non-Hodgkin's Lymphoma	Ovary	Cervix
Florida	**1,366**	**1,198**	**1,497**	**983**	**324**
Sex					
Female	350	297	658	983	324
Male	1,016	901	839	NA	NA
Race					
Black	79	112	138	79	59
White	1,272	1,060	1,324	869	259
Sex and race					
Black female	34	27	73	79	59
White female	312	267	572	869	259
Black male	45	85	65	NA	NA
White male	960	793	752	NA	NA

Age-adjusted cancer incidence and mortality rates per 100,000 population per year in Florida in 2016 (age adjusted to the 2000 U.S. Standard Population)

	Age-Adjusted Incidence Rate (Confidence Interval)	Age-Adjusted Mortality Rate (Confidence Interval)
All Cancers	**434.8 (432.2, 437.3)**	**148.9 (147.5, 150.4)**
Female Breast	120.3 (118.4, 122.3)	18.8 (18.1, 19.6)
Prostate	91.1 (89.5, 92.7)	16.3 (15.6, 17.0)
Lung and Bronchus	57.3 (56.5, 58.2)	36.7 (36.0, 37.4)
Colorectal	36.3 (35.6, 37.1)	13.1 (12.7, 13.5)
Melanoma	27.7 (27.0, 28.4)	2.5 (2.3, 2.7)
Bladder	18.7 (18.2, 19.3)	4.5 (4.3, 4.7)
Head and Neck	18.1 (17.6, 18.6)	4.1 (3.9, 4.3)
Non-Hodgkin's Lymphoma	18.4 (17.9, 18.9)	5.2 (4.9, 5.4)
Ovary	11.2 (10.6, 11.8)	6.2 (5.8, 6.7)
Cervix	9.6 (9.0, 10.3)	2.6 (2.3, 2.9)

Number of new cancer diagnoses by county in Florida in 2016

	All Cancers	Lung and Bronchus	Prostate	Female Breast	Colorectal	Bladder	Head and Neck	Non-Hodgkin's Lymphoma	Melanoma	Ovary	Cervix
Florida	**120,431**	**16,954**	**12,686**	**16,721**	**10,078**	**5,581**	**5,056**	**4,980**	**6,369**	**1,561**	**1,068**
Alachua	1,289	163	130	192	99	37	62	49	79	14	13
Baker	143	16	10	26	12	–	–	–	–	–	–
Bay	1,029	181	120	140	88	37	50	41	53	12	10
Bradford	148	25	16	17	12	–	–	–	15	–	–
Brevard	4,124	713	359	520	327	166	182	160	311	67	27
Broward	10,032	1,158	1,133	1,482	863	429	387	406	438	125	86
Calhoun	74	21	–	10	12	–	–	–	–	–	–
Charlotte	1,484	236	185	183	114	85	62	59	104	14	–
Citrus	1,309	218	126	159	113	65	68	55	70	21	10
Clay	1,116	187	85	169	112	50	46	48	63	17	13
Collier	2,253	250	354	280	158	117	90	96	198	29	18
Columbia	433	73	45	60	46	13	29	13	18	–	–
Desoto	164	29	18	14	23	–	–	–	–	–	–
Dixie	121	28	10	12	12	–	–	–	–	–	–
Duval	5,252	746	507	759	394	207	234	245	263	62	66

-- Counts for cells with <10 cases are suppressed

NA Not applicable for gender-specific cancer types

Number of new cancer diagnoses by county in Florida in 2016 (continued)

	All Cancers	Lung and Bronchus	Prostate	Female Breast	Colorectal	Bladder	Head and Neck	Non-Hodgkin's Lymphoma	Melanoma	Ovary	Cervix
Escambia	1,751	324	150	250	141	89	86	75	107	–	15
Flagler	838	123	68	112	65	45	36	27	85	13	–
Franklin	77	15	10	10	–	–	–	–	–	–	–
Gadsden	264	34	33	34	24	12	12	–	–	–	–
Gilchrist	93	24	–	–	–	–	–	–	–	–	–
Glades	57	–	–	–	–	–	–	–	11	–	–
Gulf	109	22	–	12	–	–	–	–	–	–	–
Hamilton	71	–	–	10	–	–	–	–	–	–	–
Hardee	133	22	16	15	21	–	–	–	–	–	–
Hendry	151	24	11	19	10	–	10	–	–	–	–
Hernando	1,487	268	150	192	118	74	53	60	65	21	–
Highlands	719	134	69	103	63	32	29	22	40	–	–
Hillsborough	6,917	895	683	997	632	281	296	304	328	84	75
Holmes	61	13	–	10	–	–	–	–	–	–	–
Indian River	1,210	209	109	138	94	66	48	59	108	21	–
Jackson	219	31	15	23	27	–	13	–	–	–	–
Jefferson	80	18	15	–	–	–	–	–	–	–	–
Lafayette	34	–	–	–	–	–	–	–	–	–	–
Lake	2,603	379	283	339	209	160	126	112	104	31	11
Lee	4,709	717	546	601	336	259	230	197	271	43	40
Leon	1,110	143	145	164	90	34	52	38	42	19	–
Levy	257	51	26	37	26	–	15	–	–	–	–
Liberty	39	–	–	–	–	–	–	–	–	–	–
Madison	95	19	14	–	–	–	–	–	–	–	–
Manatee	2,489	335	306	357	184	147	93	107	192	29	–
Marion	2,955	454	334	368	233	166	112	119	180	43	27
Martin	1,282	168	130	176	90	74	36	55	125	18	12
Miami-Dade	13,002	1,461	1,480	1,806	1,330	476	479	665	285	190	156
Monroe	463	63	50	51	46	–	24	16	43	–	–
Nassau	674	93	76	81	51	24	30	23	52	–	11
Okaloosa	1,006	161	95	147	67	52	52	37	57	11	–
Okeechobee	266	38	23	39	20	10	13	–	–	–	–
Orange	5,239	616	549	776	455	186	217	209	195	72	71
Osceola	1,666	196	182	233	152	51	62	76	62	31	20
Palm Beach	9,222	1,138	997	1,340	703	517	323	402	556	112	52
Pasco	3,349	530	303	444	269	196	141	142	203	50	36
Pinellas	6,639	997	634	982	562	359	325	240	435	85	59
Polk	3,922	615	371	546	325	165	171	136	218	50	45
Putnam	502	122	40	56	44	24	28	13	16	–	–
Santa Rosa	902	156	73	133	82	48	33	40	58	13	–
Sarasota	3,574	544	412	492	244	217	128	158	270	43	22
Seminole	2,044	260	199	325	163	93	71	83	97	30	15
St. Johns	1,341	202	152	189	101	86	65	51	87	24	–
St. Lucie	1,755	281	199	232	131	83	74	52	80	18	15
Sumter	1,293	193	167	201	104	78	42	42	46	18	–
Suwannee	323	59	36	31	27	11	25	11	12	–	–
Taylor	131	26	12	18	10	–	–	–	–	–	–
Union	204	35	31	11	18	–	22	11	–	–	–
Volusia	3,526	547	304	486	324	150	165	125	221	55	21
Wakulla	156	34	22	15	10	–	–	–	–	–	–
Walton	322	71	26	38	23	17	25	13	–	–	–
Washington	129	24	–	18	10	–	–	–	–	–	–

-- Counts for cells with <10 cases are suppressed

Number of cancer deaths by county in Florida in 2016

	All Cancers	Lung and Bronchus	Prostate	Female Breast	Colorectal	Bladder	Head and Neck	Non-Hodgkin's Lymphoma	Melanoma	Ovary	Cervix
Florida	**43,653**	**10,983**	**2,171**	**2,846**	**3,811**	**1,366**	**1,198**	**1,497**	**618**	**983**	**324**
Alachua	465	101	24	29	34	17	20	17	–	11	–
Baker	65	21	–	–	–	–	–	–	–	–	–
Bay	280	90	16	20	24	–	10	–	–	–	–
Bradford	63	12	–	–	–	–	–	–	–	–	–
Brevard	1,634	462	72	97	131	54	41	53	33	44	13
Broward	3,393	693	171	259	312	99	87	111	44	77	26
Calhoun	34	16	–	–	–	–	–	–	–	–	–
Charlotte	593	156	35	36	50	20	–	27	–	14	–
Citrus	548	161	18	32	59	25	23	22	–	11	–
Clay	413	120	14	24	40	–	10	–	–	–	–
Collier	753	184	41	47	61	32	18	25	16	21	–
Columbia	191	62	–	12	–	–	–	–	–	–	–
Desoto	77	22	–	–	–	–	–	–	–	–	–
Dixie	51	11	–	–	–	–	–	–	–	–	–
Duval	1,675	417	78	110	136	42	57	67	23	39	20
Escambia	696	199	31	40	57	22	22	26	14	12	–
Flagler	333	93	16	20	27	12	–	13	–	–	–
Franklin	33	11	–	–	–	–	–	–	–	–	–
Gadsden	97	21	–	–	–	–	–	–	–	–	–
Gilchrist	34	10	–	–	–	–	–	–	–	–	–
Glades	29	–	–	–	–	–	–	–	–	–	–
Gulf	41	14	–	–	–	–	–	–	–	–	–
Hamilton	30	10	–	–	–	–	–	–	–	–	–
Hardee	42	18	–	–	–	–	–	–	–	–	–
Hendry	65	17	–	–	–	–	–	–	–	–	–
Hernando	614	181	17	33	46	20	20	18	11	14	–
Highlands	319	94	16	22	24	14	10	–	–	–	–
Hillsborough	2,354	574	113	150	235	61	71	87	29	63	19
Holmes	46	13	–	–	–	–	–	–	–	–	–
Indian River	494	135	37	34	42	21	–	14	–	–	–
Jackson	121	31	11	–	16	–	–	–	–	–	–
Jefferson	45	–	–	–	–	–	–	–	–	–	–
Lafayette	17	–	–	–	–	–	–	–	–	–	–
Lake	950	249	40	45	81	31	18	28	12	25	–
Lee	1,667	457	87	99	117	56	51	62	32	41	10
Leon	379	85	15	27	39	–	–	12	–	10	–
Levy	123	39	–	–	–	–	–	–	–	–	–
Liberty	11	–	–	–	–	–	–	–	–	–	–
Madison	45	14	–	–	–	–	–	–	–	–	–
Manatee	857	220	33	50	59	31	20	24	22	21	–
Marion	1,060	261	58	54	112	33	35	34	12	22	–
Martin	426	107	15	22	41	19	–	14	–	–	–
Miami-Dade	4,409	876	293	313	452	113	93	187	37	103	41
Monroe	167	36	11	12	20	–	–	–	–	–	–
Nassau	201	56	–	12	10	–	–	–	–	–	–
Okaloosa	389	114	18	19	26	–	–	11	–	–	–
Okeechobee	98	29	–	–	–	–	–	–	–	–	–
Orange	1,817	414	95	137	161	55	57	57	17	33	14
Osceola	481	103	20	42	37	10	18	16	–	11	–
Palm Beach	3,258	748	179	224	296	116	53	134	47	87	23
Pasco	1,321	399	49	80	122	43	42	38	21	29	–

Section 6: Cancer

Number of cancer deaths by county in Florida in 2016 (continued)

	All Cancers	Lung and Bronchus	Prostate	Breast	Colorectal	Bladder	Head and Neck	Non-Hodgkin's Lymphoma	Melanoma	Ovary	Cervix
Pinellas	2,424	693	109	156	209	90	77	78	43	57	10
Polk	1,422	402	58	97	103	48	47	42	24	22	10
Putnam	238	85	–	–	17	–	–	–	–	–	–
Santa Rosa	320	80	14	26	23	12	–	–	–	–	–
Sarasota	1,360	330	76	92	93	44	37	52	17	32	–
Seminole	833	208	44	61	68	20	33	34	13	16	–
St. Johns	456	125	24	34	36	17	13	17	12	18	–
St. Lucie	777	209	33	54	75	20	24	27	–	13	–
Sumter	468	105	41	25	29	16	–	15	–	13	–
Suwannee	141	36	–	–	17	–	–	–	–	–	–
Taylor	62	15	–	–	–	–	–	–	–	–	–
Union	78	27	–	–	–	–	–	–	–	–	–
Volusia	1,495	402	64	90	133	50	44	40	19	28	–
Wakulla	61	17	–	–	–	–	–	–	–	–	–
Walton	146	41	–	–	17	–	–	–	–	–	–
Washington	68	25	–	–	–	–	–	–	–	–	–

--Counts for cells with <10 cases are suppressed

Congenital and Perinatal Conditions

Section 7

Section 7: Congenital and Perinatal Conditions

Birth Defects

Every 4½ minutes, a baby is born with a birth defect in the U.S. Major birth defects are conditions present at birth that cause structural changes in one or more parts of the body. They can have a serious adverse effect on health, development or functional ability. Birth defects are one of the leading causes of infant mortality, causing one in five infant deaths. In Florida, there are approximately 220,000 live births annually and 1 out of every 28 babies is born with a major birth defect. Despite their substantial impact, only 35% of birth defects have a known cause and research suggests a complex interaction between genetic and environmental factors. In 1997, the Florida Legislature provided funding to the Department to operate and manage a statewide population-based birth defects registry, the Florida Birth Defects Registry (FBDR). Birth defects are reportable to the FBDR.

FBDR surveillance data are used for:

- Tracking and detecting trends in birth defects.
- Identifying when and where birth defects can possibly be prevented.
- Providing the basis for studies on the genetic and environmental causes of birth defects.
- Planning and evaluating the impact of efforts to prevent birth defects.
- Helping Florida's families whose infants and children need appropriate medical, educational and social services.

The FBDR collects information on more than 100,000 infants born with serious birth defects. Data are collected on live infants born to mothers residing in Florida who are diagnosed with one or more structural, genetic or other specified birth outcomes in the first year of life. The FBDR links secondary source datasets, including the Florida Division of Public Health Statistics and Performance Management birth records and the Agency for Health Care Administration hospital inpatient and ambulatory discharge databases. There is an inherent delay in FBDR data since they include all outcomes through the first year of life. At the time this report was published, the most recent FBDR data available were from 2016.

	2010–2014 average		2011–2015 average		2012–2016 average	
Central nervous system defects	Number	Rate	Number	Rate	Number	Rate
Spina bifida without anencephalus	59	2.8	56	2.6	54	2.5
Anencephalus	17	0.8	18	0.9	19	0.9
Cardiovascular defects						
Tetralogy of Fallot	105	4.9	104	4.8	105	4.8
Atrioventricular septal defect	88	4.1	86	4.0	80	3.7
Hypoplastic left heart syndrome	69	3.2	68	3.2	74	3.4
Transposition of the great arteries	51	2.4	53	2.5	54	2.5
Orofacial defects						
Cleft palate without cleft lip	110	5.1	107	5.0	112	5.1
Cleft lip with cleft palate	106	5.0	110	5.1	113	5.2
Musculoskeletal defects						
Gastroschisis	100	4.7	96	4.4	92	4.2
All limb deficiencies (reduction deformities)	81	3.8	76	3.5	76	3.5
Chromosomal defects						
Trisomy 21 (Down syndrome)	289	13.5	283	13.1	277	12.7

In 2016, Down syndrome was the most commonly identified birth defect among those listed. The number and rate per 10,000 live births of each type of birth defect reported in 2016 were similar to the number reported in 2015.

For more information, please visit FloridaHealth.gov/diseases-and-conditions/birth-defects/index.html.

Section 7: Congenital and Perinatal Conditions

Neonatal Abstinence Syndrome

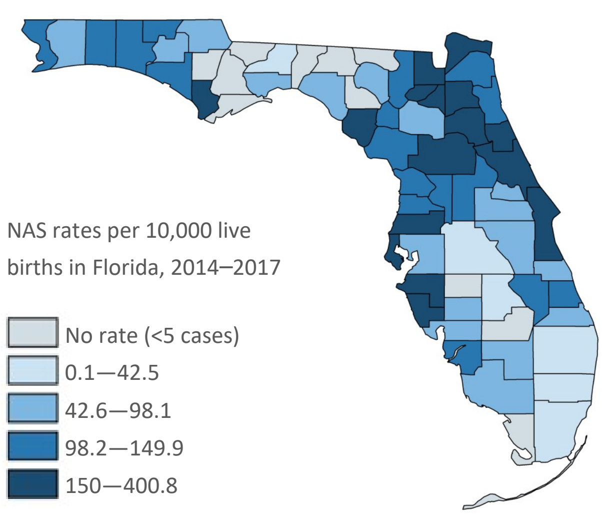
Neonatal abstinence syndrome (NAS) occurs in a newborn who was exposed to addictive opiate drugs while in their mother's womb. The most common opiate drugs that are associated with NAS are heroin, codeine, oxycodone (Oxycontin), methadone and buprenorphine. Symptoms of withdrawal depend on the drug involved.

Symptoms can begin within one to three days after birth, or may take up to 10 days to appear and may include:

- Blotchy skin coloring (mottling)
- Diarrhea
- Excessive or high-pitched crying
- Excessive sucking
- Fever
- Hyperactive reflexes
- Increased muscle tone
- Irritability
- Jitteriness
- Poor feeding
- Rapid breathing
- Seizures
- Sleep problems
- Slow weight gain
- Stuffy nose
- Sneezing
- Sweating
- Trembling (tremors)
- Vomiting

NAS became a reportable condition in Florida in June 2014. FBDR conducts enhanced surveillance for NAS. Surveillance incorporates multi-source passive case finding efforts and trained abstractor review of maternal and infant hospital medical records to obtain all relevant clinical information to classify potential NAS cases, determine specific agents the mother and infant were exposed to and to develop a more complete understanding of the public health issue. Currently, there is substantial variation in the diagnosis and reporting of NAS across institutions, providers and surveillance systems. There is an inherent delay in FBDR data since the case definition includes all outcomes through the first year of life. At the time this report was published, the most recent NAS data available were from 2017.

NAS rates per 10,000 live births in Florida for 2014–2017 were highest in low-population counties, particularly in northeast Florida.



Each year, most cases are identified in males, whites and non-Hispanics.

	2015	2016	2017	3-year trend
Gender				
Female	715	696	687	
Male	795	784	816	
Race				
White	1,327	1,289	1,252	
Black	86	103	89	
Other	97	88	162	
Ethnicity				
Hispanic	67	47	97	
Non-Hispanic	1,443	1,433	1,406	
Total	1,510	1,480	1,503	

For more information, please visit FloridaHealth.gov/diseases-and-conditions/birth-defects/NeonatalAbstinenceSyndromeNAS.html.

Section 7: Congenital and Perinatal Conditions

Perinatally Acquired HIV

Perinatal HIV transmission, also known as vertical HIV transmission, can occur at any point during pregnancy, labor, delivery or ingestion of breast milk. The Centers for Disease Control and Prevention (CDC) recommends that all women who are pregnant or planning to become pregnant be tested for HIV before pregnancy and as early as possible during every pregnancy. Per Florida Administrative Code Rule 64D-3.042, all pregnant women must be tested for HIV and other sexually transmitted infections at their initial prenatal care visit, at 28–32 weeks and at labor and delivery. This testing requirement allows Florida's providers to address any potential missed opportunities for HIV prevention during the prenatal period. If a pregnant mother living with HIV is aware of her HIV status, takes HIV antiretroviral medications as prescribed throughout pregnancy, labor and delivery, and gives antiretroviral medications to her infant for 4–6 weeks after delivery there is less than 1% chance of perinatal HIV transmission.

Florida's strategic goal aims to reduce the annual number of infants born in Florida with perinatally acquired HIV to less than five. Prevention of perinatally acquired HIV in Florida is focused on:

- Prevention services for women of childbearing age (15–44 years old).
- Ensuring women of childbearing age living with HIV are virally suppressed.
- Ensuring medical and social services for pregnant women living with HIV and their infants.
- Education and technical assistance for providers who treat pregnant women.

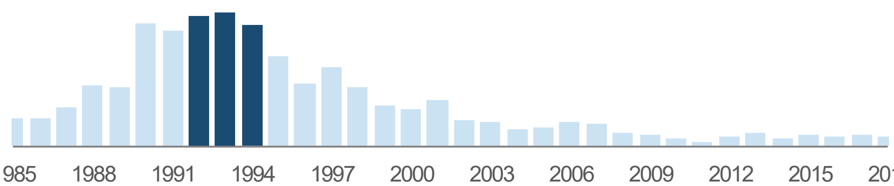
Florida 2018

497 infants perinatally exposed to HIV

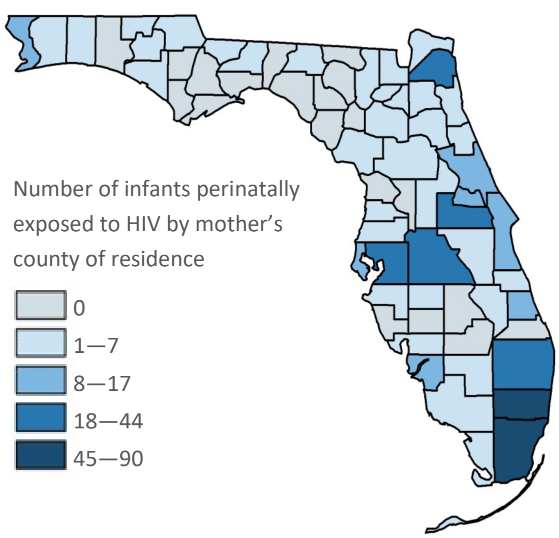
8 infants born with perinatally acquired HIV

2 infants developed AIDS

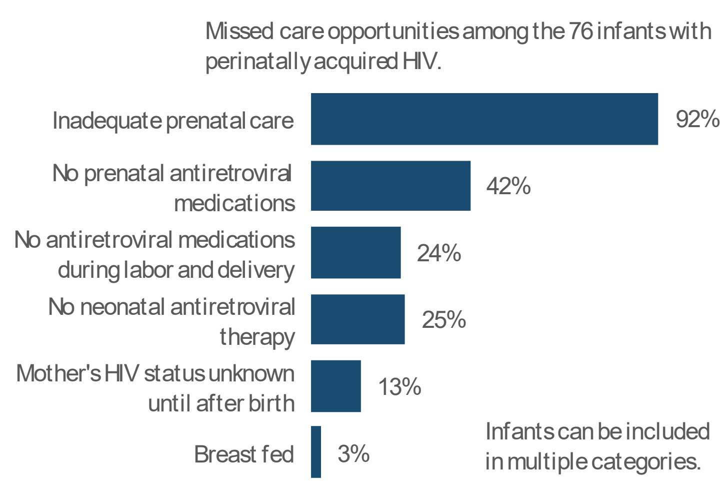
Perinatal HIV transmission has decreased substantially in Florida over the past few decades. This decrease is largely thanks to the **initiation of antiretroviral therapy (ART) between 1992 and 1994.** When pregnant women living with HIV are using ART they can achieve viral suppression (<200 copies/mL), which greatly reduces HIV transmission to infants.



In 2018, 497 Infants were perinatally exposed to HIV throughout the state (including the 8 infants who acquired HIV). South Florida, particularly Miami-Dade and Broward counties, has more perinatal exposures (Broward n=85, Miami-Dade n=90), likely due to the high burden of HIV in this area.



The most common missed opportunity for HIV prevention among the 76 infants with perinatally acquired HIV from 2009–2018 was inadequate prenatal care; 92% of mothers whose infants acquired HIV did not receive adequate prenatal care. Inadequate prenatal care is defined as prenatal care occurring after the fourth month of pregnancy and less than five prenatal visits during pregnancy.



For additional information on HIV/AIDS, see Section 1: Data Summaries for Common Reportable Diseases/Conditions. For more information about perinatal prevention services, see FloridaHealth.gov/diseases-and-conditions/aids/prevention/topwa1.html.

Section 7: Congenital and Perinatal Conditions

Congenital Syphilis

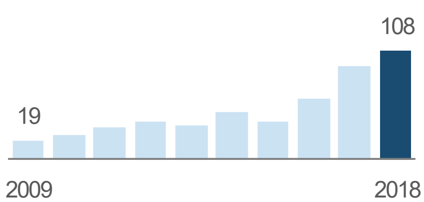
Congenital syphilis can occur when a fetus is exposed during pregnancy. The exposure can be due to new or previous untreated infections in pregnant women. While previous untreated infections can result in congenital syphilis, infant outcomes are typically worse if women are newly infected during pregnancy, as the bacterial count is higher. An infant born with congenital syphilis can develop an array of symptoms, including failure to thrive, skeletal and facial deformities, watery fluid from the nose, rash, blindness, joint swelling and death. Per Florida Administrative Code Rule 64D-3.042 and section 384.31, Florida Statues, all pregnant women must be tested for HIV and other sexually transmitted infections, including syphilis, at their initial prenatal care visit, at 28–32 weeks gestation and at delivery if not tested at 28–32 weeks.

Congenital syphilis prevention in Florida is focused on:

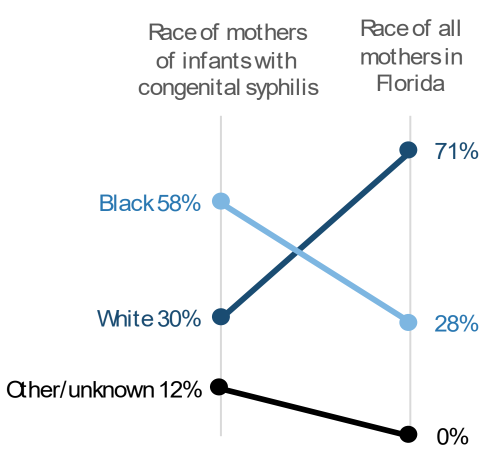
- Ensuring pregnant women have access to prenatal care and sexually transmitted disease prevention services.
- Increased testing during the first and last trimesters and at delivery for pregnant women without prenatal testing or who had reactive tests during pregnancy.
- Educating and training providers on the importance of testing and the recommended treatment for pregnant women.
- Partnering with local organizations, for example Healthy Start, to collaborate and work with patients and providers to ensure appropriate follow-up for testing and treatment.

To prevent congenital syphilis, a pregnant woman who has an infection must begin adequate treatment more than 30 days prior to delivery. In 2018, 59% of the 108 infants in Florida with congenital syphilis were born to women who were not tested for syphilis more than 30 days prior to delivery and therefore could not begin timely treatment to prevent congenital syphilis.

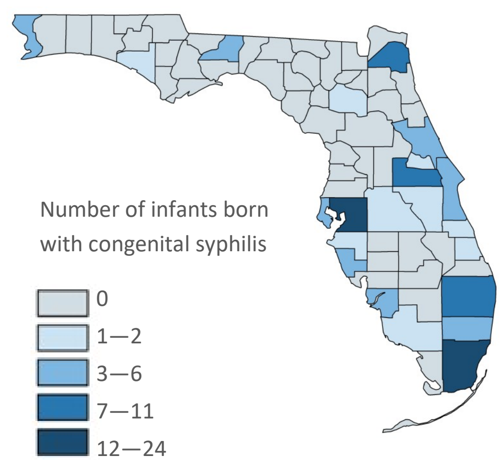
Over the past 10 years, congenital syphilis cases have increased 468% in Florida. In 2018, 377 pregnant women were diagnosed with syphilis and 108 infants were born with congenital syphilis, including two stillbirths.



Compared to the race distribution of all women who gave birth in Florida, **black women were disproportionately more likely to have an infant with congenital syphilis than white women** in 2018.



In 2018, congenital syphilis cases occurred primarily in central and south Florida. The highest-burdened counties were Miami-Dade (24), Hillsborough (13), Duval (11) and Orange (9).



Most women (59%) who gave birth to infants with congenital syphilis were <30 years old, which is comparable to the statewide age breakdown of all women who gave birth (52% <30 years old).

Mother's age	Number	Percent
15–19	5	4.6%
20–24	26	24.1%
25–29	33	30.6%
30–34	28	25.9%
35–39	10	9.3%
40–44	6	5.6%

For additional information on syphilis, see Section 1: Data Summaries for Common Reportable Diseases/Conditions, and FloridaHealth.gov/diseases-and-conditions/sexually-transmitted-diseases/std-fact-sheets/congenital-syphilis.html.

Section 7: Congenital and Perinatal Conditions

Perinatal Hepatitis B

Hepatitis B virus (HBV) infection during pregnancy poses a serious risk to the infant at birth. Without post-exposure prophylaxis (PEP), approximately 40% of infants born to mothers with HBV in the U.S. will develop chronic HBV infection, approximately one-fourth of whom will eventually die from chronic liver disease. Perinatal HBV transmission can be prevented by identifying pregnant women with HBV and providing hepatitis B immune globulin and hepatitis B vaccine to their infants within 12 hours of birth. Preventing perinatal HBV transmission is an integral part of the national strategy to eliminate hepatitis B in the U.S.

National guidelines call for:

- Universal screening of pregnant women for HBV surface antigen during each pregnancy.
- Case management of mothers and their infants with HBV.
- Provision of immunoprophylaxis for infants born to mothers with HBV, including hepatitis B vaccine and hepatitis B immune globulin.
- Routine hepatitis B vaccination for all infants, with the first dose administered at birth.

The 2017 National Immunization Survey estimates that HBV vaccination coverage for birth dose administered from birth through 3 days of age was 73.6% in the U.S. and 66% in Florida. Birthing hospitals have a standing order to administer the birth dose of hepatitis B vaccine; however, pediatricians sometimes choose to wait to give the first dose in their private offices. With lower-than-expected vaccination rates, Florida is currently working with the Florida Chapter of the American Academy of Pediatrics to provide education reminding health care providers that the recommendation is now to provide the vaccine birth dose within 24 hours to help decrease HBV infections in newborns. Despite low compliance with administering the birth dose of HBV vaccine, only 10 perinatal hepatitis B cases have been reported over the past 10 years, with one case reported in 2017 and the most recent cases prior to that in 2014.

Please see Hepatitis B, Pregnant Women in Section 1: Data Summaries for Common Reportable Diseases/Conditions for additional information on HBV surveillance in pregnant women.

Centers for Disease Control and Prevention. 2017 Childhood Hepatitis B (HepB) Vaccination Coverage Report. www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/hepb/reports/2017.html. Accessed November 18, 2019.

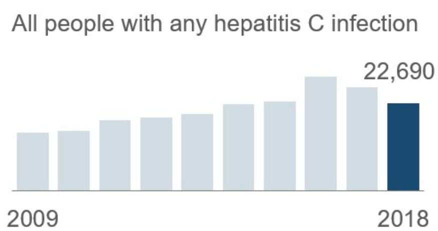
Hill HA, Elam-Evans LD, Yankey D, Singleton JA, Kang Y. 2017. Vaccination coverage among children aged 19–35 months — United States, 2016. Morbidity and Mortality Weekly Report. 2017; 66(43):1171–1177. doi: 10.15585/mmwr.mm6539a4. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6643a3.htm.

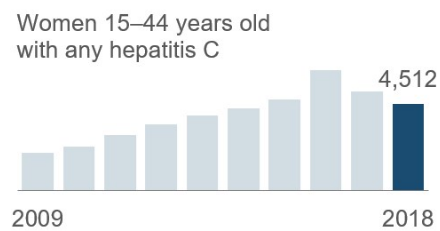
Perinatal Hepatitis C

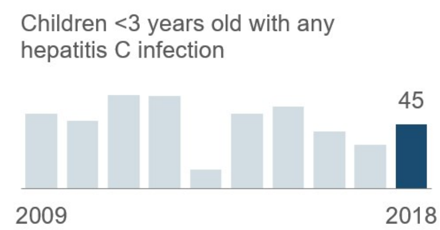
Hepatitis C virus (HCV) infection is a leading cause of liver-related morbidity and mortality. Transmission of HCV is primarily via parenteral blood exposure, and HCV can be transmitted vertically from mother to child. Compared to vertical transmission for infants born to mothers with HBV, the rate of vertical transmission for HCV is much lower. Vertical transmission occurs in approximately 6% of infants born to mothers with HCV, although that rate can double for women who are also living with HIV or who have high HCV viral loads. According to the CDC, the rate of acute hepatitis C increased by 43% among women across the U.S. from 2013 to 2017, and women of childbearing age testing positive for HCV increased by 22% from 2011 to 2014. CDC recommends that health care providers assess all pregnant women for risk factors associated with hepatitis C and test those who may be at risk. CDC also recommends testing for all infants born to mothers with HCV. Having a pediatric specialist can assist in monitoring disease progression in babies and aid in intervention when needed. These children should be vaccinated against hepatitis A and B, and specialists should monitor any medication that could potentially harm the already fragile liver. More research is needed to better understand if treatment for hepatitis C is safe for pregnant women and children. Florida enhanced its efforts to identify and perform outreach to those mothers and infants at highest risk for HCV transmission. Infants born to mothers with HCV should be tested for HCV at the first well-baby visit, again at 2 months and followed up to identify any adverse health outcomes.

Section 7: Congenital and Perinatal Conditions

Changes in treatment options for HCV have led to an increased focus on identifying HCV infections. Given the large number of chronic hepatitis C cases reported and limited county health department resources, there have been concerns regarding data completeness and case ascertainment in the past. Earlier data are less reliable. Over the past few years, improvements in electronic laboratory reporting and increased focus on surveillance are believed to have improved case ascertainment. To improve case ascertainment of perinatal infections, Florida developed and implemented a surveillance case definition for perinatal hepatitis C in 2016. Previously, these cases were captured within the chronic hepatitis C case definition. In 2018, Florida added a suspect case classification for perinatal hepatitis C to include cases that did not have any confirmatory testing reported.







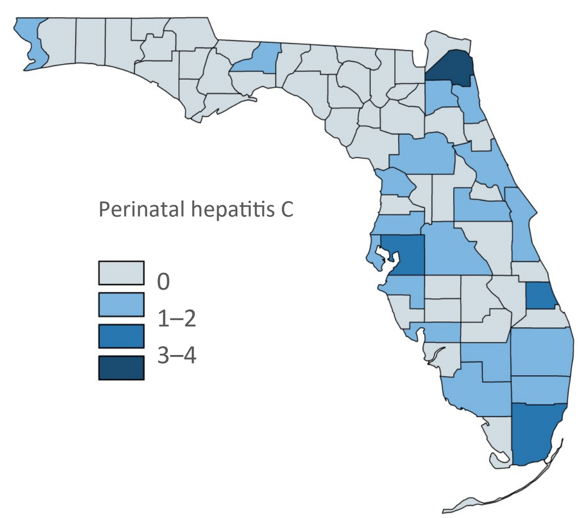
The number of cases with acute or chronic hepatitis C increased by 50% from 2009 to 2018. The number of women of childbearing age with acute or chronic hepatitis C increased 128% in that same period. Despite this increase among women, the number of children <3 years old identified with acute, chronic or perinatal hepatitis C has not increased over the past 10 years.

The number of perinatal hepatitis C cases almost doubled from 22 in 2017 to 40 in 2018. In 2018, more cases were in males, whites and non-Hispanics. Race was unknown in 48% of cases. Most cases were confirmed. Note that perinatal hepatitis C has only been reportable since 2016. Acute and chronic hepatitis C cases can still be reported in children <3 years old if the infections are determined not to be perinatal (not included in this table or map).

Summary	Number
Cases in 2017	22
Cases in 2018	40
Gender	**Number**
Female	19
Male	21
Unknown gender	0
Race	**Number**
White	17
Other	4
Unknown race	19

Ethnicity	Number
Non-Hispanic	18
Unknown ethnicity	22
Case Classification	**Number**
Confirmed	36
Probable	4

Perinatal hepatitis C cases occurred in counties throughout the state in 2018. Duval (7) and St. Lucie (4) had the most cases in 2018.



Centers for Disease Control and Prevention. Increases in Hepatitis C Threaten Young Women and Babies. www.cdc.gov/nchhstp/newsroom/2016/hcv-perinatal-press-release.html. Accessed November 15, 2018.

Centers for Disease Control and Prevention. Surveillance for Viral Hepatitis – United States, 2017. Available at www.cdc.gov/hepatitis/statistics/2017surveillance/index.htm. Accessed September 10, 2019.

Koneru A, Nelson N, Hariri S, Canary L, Sanders KJ, Maxwell JF, et al. Increased hepatitis C virus (HCV) detection in women of childbearing age and potential risk for vertical transmission — United States and Kentucky, 2011–2014. Morbidity and Mortality Weekly Report. 2016; 65(28):705-710. doi: 10.15585/mmwr.mm652. Available at www.cdc.gov/mmwr/volumes/65/wr/ mm6528a2.htm.

Publications and Reports

Section 8

Section 8: Publications and Reports

Publications With Department Authors

Below is the list of articles with Department authors that were published in peer-reviewed journals in 2018. Note that Department authors appear in bold font.

Bayly J.E., Bernat D., **Porter L.**, & Choi K. 2018. "Secondhand Exposure to Aerosols From Electronic Nicotine Delivery Systems and Asthma Exacerbations Among Youth With Asthma." *Chest* 155 (1):88-93. DOI: https://doi.org/10.1016/j.chest.2018.10.005.

Bayly J.E., Bernat D., **Porter L.**, **O'Dare K.**, & Choi K. 2018. "Prevalence and Characteristics of Secondhand Smoke and Secondhand Vapour Exposure Among Youth." *Tobacco Control* 28 (3):305-310. DOI: http://dx.doi.org/10.1136/tobaccocontrol-2018-054265.

Bernat D., Gasquet N., **O'Dare K.**, **Porter L.**, & Choi K. 2018. "Electronic Cigarette Harm and Benefit Perceptions and Use Among Youth." *American Journal of Preventive Medicine* 55 (3):361-367. DOI: https://doi.org/10.1016/j.amepre.2018.04.043.

Bosch K.A., Coyle J.R., Hansen V., Kim E.M., Speers S., **Comer M.**, **… Maddox L.M.**, HIV and Viral Hepatitis Coinfection Analysis Using Surveillance Data From 15 U.S. States and Two Cities. *Epidemiology and Infection*. 2018 April 11.
DOI: https://doi.org/10.1017/S0950268818000766.

Caban-Martinez AJ.., Santiago K.M., Menger-Ogle L.M., Wendorf Muhamad J., **Baniak M.**, **Jordan M.**, & Okun A. 2018. "950 Health and Safety of Temporary Construction Workers: Evidence From Teaching Temporary Employees About Competencies in Health and Safety (teachs) Study." *Occupational and Environmental Medicine* 75 (2).
DOI: http://dx.doi.org/10.1136/oemed-2018-ICOHabstracts.387.

Cha S., **Matthias J.**, Rahman M., Schillinger J.A., Furness B.W., Pugsley R.A., Kidd S., Bernstein K.T., & Peterman T.A. 2018. Reactor Grids for Prioritizing Syphilis Investigations: Are Primary Syphilis Cases Being Missed? *Sex Transm Dis*, 45(10):648-654.

Comer M., **Matthias J.**, **Nicholson G.**, Asher A., Holmberg S., & **Wilson C.** Notes From the Field: Increase in Acute Hepatitis B Infections – Pasco County, Florida 2011—2016. *MMWR,* 67(7):230-231. DOI: http://dx.doi.org/10.15585/mmwr.mm6707a6.

Concepción-Acevedo J., Patel A., Luna-Pinto C., Peña R.G., Cuevas Ruiz R.I., Arbolay H.R., Toro M., Deseda C., De Jesus V.R., Ribot E., Gonzalez J.Q., Rao G., De Leon Salazar A., Ansbro M., White B.B., Hardy M.C., Georgi J.C., Stinnett R., Mercante A.M., Lowe D., Martin H., Starks A., Metchock B., Johnston S., Dalton T., Joglar O., Stafford C., Youngblood M., Klein K., Lindstrom S., Berman L., Galloway R., Schafer I.J., Walke H., Stoddard R., Connelly R., McCaffery E., **Rowlinson M.C.**, Soroka S., Tranquillo D.T., Gaynor A., Mangal C., Wroblewski K., Muehlenbachs A., Salerno R.M., Lozier M., Sunshine B., Shapiro C., Rose D., Funk R., Pillai S.K., & O'Neill E. 2018. Initial Public Health Laboratory Response After Hurricane Maria— Puerto Rico, 2017. *MMWR Morb Mortal Wkly Rep* 2018;67:333–336. DOI: http://dx.doi.org/10.15585/mmwr.mm6711a5.

Cyrus E., Sheehan D.M., Fennie K., Sanchez M., Dawson C.T., Cameron M., **Maddox L.**, & Trepka M.J. Delayed diagnosis of HIV among non-Latino black Caribbean immigrants in Florida 2000—2014. J Health Care Poor Underserved. 2018;29(1):266-283.

Publications With Department Authors (Continued)

Delgado C., Ullery M., Jordan M., Duclos C., Rajagopalan S., & Scott K. Lead Exposure and Developmental Disabilities in Preschool-Aged Children. Journal of Public Health Management and Practice, March/April 2018, Volume 24, Number 2, 10-17.
DOI: https://doi.org/10.1097/PHH.0000000000000556.

Elhassani D., & Ilic R.J. 2018. "Lessons Learned from a Healthcare Associated Infection Tabletop Exercise, June 2017." *Online Journal of Public Health Informatics* 10(1).

Falise A.M., Griffin I., Fernandez D., Rodriguez X., Moore E., Barrera A., Suarez J., Cutie L., & Zhang G. 2018. "Carbon Monoxide Poisoning in Miami-Dade County Following Hurricane Irma in 2017." *Disaster Medicine and Public Health Preparedness* 13 (1):94-96. DOI: https://doi.org/10.1017/dmp.2018.67.

Forbes B.A., Hall G.S., Miller M.B., Novak S.M., Rowlinson M.C., Salfinger M., Somosková A., Warshauer D.M., & Wilson M.L. 2018. Practice Guidelines for Clinical Microbiology Laboratories: Mycobacteria. *J Clin Microbiol Rev.* Apr 31;31(2). pii: e00038-17. DOI: 10.1128/CMR.00038-17.

Forrest, D.W., Cardenas, G., Dodson, C.S., Metsch, L.R., LaLota, M., & Spencer, E. Trends in the HIV epidemic among men who have sex with men in Miami-Dade County, Florida, 2004—2014. Florida Public Health Review, (2018); 15, 41—8.

Griffin I., Schmitz A., Oliver C., Pritchard S., Zhang G., Rico E., Davenport E., Llau A., Moore E., Fernandez D., Mejia-Echeverry A., Suarez J., Noya-Chaveco P., Elmir S., Jean R., Pettengill J.B., Hollinger K.A., Chou K., Williams-Hill D., Zaki S., Muehlenbachs A., Keating M.K., Bhatnagar J., Rowlinson M.C., Chiribau C., & Rivera L. 2018. Outbreak of Tattoo-Associated Nontuberculous Mycobacterial Skin Infections. Clin Infect Dis. 2018 Nov 17. DOI: https://doi.org/10.1093/cid/ciy979.

Issa A., Ramadugu K., Mulay P., Hamilton J., Siegel V., Harrison C., Mullarkey Campbell C., Blackmore C., Bayleyegn T., & Boehmer T. Deaths related to Hurricane Irma—Florida, Georgia, and North Carolina, September 4—October 10, 2017. Morb Mortal Wkly Rep. 2018;67:829-832. https://www.cdc.gov/mmwr/volumes/67/wr/mm6730a5.htm.

Kim S.Y., Bailey M.A., Richardson J., McFarland C.A.S., Sappenfield W.M., Luke S., & Sharma A.J. 2018. "Gestational Weight Loss: Comparison Between the Birth Certificate and the Medical Record, Florida, 2012." *Maternal and Child Health Journal* 23 (2):148—154. DOI: https://doi.org/10.1007/s10995-018-2604-0.

Lee Y.O., Pepper J.K., MacMonegle A.J., Nonnemaker J.M., Duke J.C., & Porter L. 2018. "Examining Youth Dual and Polytobacco Use With E-Cigarettes." *International Journal of Environmental Research and Public Health* " 15 (4):699. DOI: https://doi.org/10.3390/ijerph15040699.

Marhefka S.L., Sharma V., Schafer E.J., Turner D., Falope O., Louis-Jacques A., Wachira M.M., Livingston T., & Roig-Romero R.M. 2018. "'Why Do We Need a Policy?' Administrators' Perceptions on Breast-feeding-friendly Childcare." *Public Health Nutrition* 22 (3):553—563. DOI: https://doi.org/10.1017/S1368980018002914.

Publications With Department Authors (Continued)

Matthias J., Keller G., George D., **Wilson C.**, & Peterman T.A. "Using an Email Alert to Improve Identification of Pregnancy Status for Women With Syphilis - Florida, 2017—2018." *Journal of the American Sexually Transmitted Diseases Association* 46 (3):196—198. DOI: 10.1097/OLQ.0000000000000934.

Matthias J., Keller G., Cha S., **Wilson C.**, & Peterman T.A. Going Off Grid: Modelling an Automated Record Search to Process Electronically Reported Reactive Non-Treponemal Syphilis Tests. *Sex Transm Dis,* 45(10): 655—659.

Mauck D.E., Sheehan D.M., Fennie K.P., **Maddox L.M.**, & Trepka M.J. Role of gay neighborhood status and other neighborhood factors in racial/ethnic disparities in retention in care and viral load suppression among men who have sex with men, Florida, 2015. *AIDS and Behavior*, 2018; 22(9): 2978–2993.

Montgomery M.P., Robertson S., Koski L.,... **Chu A., Jackson J., Blanton J., Ginn A., Ramadugu K., Stanek D.**, & **DeMent J.**, Multidrug-Resistant *Campylobacter jejuni* Outbreak Linked to Puppy Exposure — United States, 2016–2018. Morb Mortal Wkly Rep 2018; 67: 1032–1035. DOI: http://dx.doi.org/10.15585/mmwr.mm6737a3.

Mulay P. 2018. "Utilization of Syndromic Surveillance to Identify Naled-Related Illness in Florida." *Online Journal of Public Health Informatics* 10 (1). DOI: https://doi.org/10.5210/ojphi.v10i1.8989.

Ng T.F.F., Yglesias J.A., Stevenson-Yuen T.A., Wolfe C.M., **Cone M.R., Heberlein-Larson L.A.**, Maher K., Rogers S., Chern S-W.W., Montmayeur A., Castro C., & Nix W.A. 2018. Characterization of the Genome Sequences of Enterovirus C109 From Two Respiratory Disease Cases in Florida, 2016. *Microbiol Resour Announc* 7:e00803-18. DOI: https://doi.org/10.1128/MRA.00803-18.

Papp J.R., **Rowlinson M.C.**, O'Connor N.P., Wholehan J., Razeq J.H., Glennen A., Ware D., Iwen P.C., Lee L.V., & Hagan C. 2018. Accuracy and reproducibility of the Etest to detect drug-resistant Neisseria gonorrhoeae to contemporary treatment. *J Med Microbiol.* Jan;67(1):68—73. DOI: https://doi.org/10.1099/jmm.0.000651. Epub 2017 Dec 8
http://jmm.microbiologyresearch.org/content/journal/jmm/10.1099/jmm.0.000651.

Parker M., **Bennett S.B.**, Sullivan T., **Fordan S.**, Wesolowski L., Wroblewski K., & Gaynor A. 2018. Performance of the Alere DetermineTM HIV-1/2 Ag/Ab Combo Rapid Test with algorithm-defined acute HIV-1 infection specimens. *J Clin Virol.* Jul; 104:89—91. Epub 2018 May 14. DOI: https://doi.org/10.1016/j.jcv.2018.05.005.

Perkins K.M., **Spoto S., Rankin D., Dotson N.Q.**, Malarkey M., Mendoza M., McNeil L., Gable P., & Powell K.M. 2018. Notes From the Field: Infections After Receipt of Bacterially Contaminated Umbilical Cord Blood–Derived Stem Cell Products for Other Than Hematopoietic or Immunologic Reconstitution — United States, 2018. *MMWR Morb Mortal Wkly Rep*;67:1397–1399. DOI: http://dx.doi.org/10.15585/mmwr.mm6750a5.

Philip C., Wells K.T., Eggert R., Elmore J., Jean R., Johnson J., Lane J., Lopez X., Rivera L., Samir E., **Strokin N.**, Villalta Y., & Ynestroza R. 2018. "Accreditation's Role in Bolstering Resilience in the Face of the Zika Virus Outbreak." *Journal of Public Health Management & Practice* 24:S92-S94. DOI: https://doi.org/10.1097/PHH.0000000000000721.

Publications With Department Authors (Continued)

Phillips-Bell G.S., **Holicky A.**, Lind J.N., Sappenfield W.M., **Hudak M.L.**, Petersen E., Anjorhin S., Watkins S.M., Creanga A.A., & Correia J.A. 2018. "Assessing the Burden of Neonatal Abstinence Syndrome Validation of *ICD-9-CM Data*, Florida, 2010—2011." *Journal of Public Health Management & Practice*. DOI: 10.1097/PHH.0000000000000897.

Pieracci E.G., **Stanek D.**, Koch D., Kohl K.S., Blanton J.D., **Harder T.**, O'Brien M., **Leon H.**, **Colarusso P.**, **Baker B.**, Brown C., Stauffer K.E., Petersen B.W., & Wallace R.M. Identification of tourists from Switzerland exposed to rabies virus while visiting the United States-January 2018. Morbidity and Mortality Weekly Report. 2018;67:477—478. www.cdc.gov/mmwr/volumes/67/wr/mm6716a5.htm.

Rankin, D., **Caicedo, L.**, **Dotson, N.**, Gable, P., & **Chu, A.** (2018). Notes from the field: Verona integron encoded metallo-beta-lactamase–producing Pseudomonas aeruginosa outbreak in a long-term acute care hospital—Orange County, Florida, 2017. *Morbidity and Mortality Weekly Report*, *67*(21), 611. DOI: 10.15585/mmwr.mm6721a6.

Reid K.M., **Forrest J.R.**, & **Porter L.** 2018. "Tobacco Product Use Among Youths With and Without Lifetime Asthma - Florida, 2016." CDC. https://www.cdc.gov/mmwr/volumes/67/wr/mm6721a2.htm#suggestedcitation.

Rowlinson M.C., Ponomareva O., Azarskova M., & Staley S. 2018. Public Health System Reform in Ukraine: Making Impactful Changes in the Public Health Laboratory. *Lab Matters- APHL Quarterly Publication.* https://view.joomag.com/lab-matters-spring-2018/0394861001526652799/p22?short.

Sheehan D.M., Cosner C., Fennie K.P., Gebrezgi M.T., Cyrus E., **Maddox L.M.**, Levison J.H., **Spencer E.C.**, Niyonsenga T., & Trepka M.J. Role of country of birth, testing site, and neighborhood characteristics on non-linkage to HIV care among Latinos. AIDS Patient Care STDS. 2018 Apr;32(4):165—173. DOI: 10.1089/apc.2018.0021. PMID: 29630853.

Spoto S., **Wiese M.**, & Lyman M. 2018. "Implementation of a Facility Based County Surveillance System Using Epi Info." *Online Journal of Public Health Informatics* 10 (1). DOI: 10.5210/ojphi.v10i1.8919.

Stenn T., **Peck K.J.**, Pereira G.R., & Burkett-Cadena N.D. 2018. "Vertebrate Hosts of *Aedes aegypti*, *Aedes albopictus*, and *Culex quinquefasciatus* (Diptera: Culicidae) as Potential Vectors of Zika Virus in Florida." *Journal of Medical Entomology* 56 (1):10—17. DOI: https://doi.org/10.1093/jme/tjy148.

Tan Y., Pickett B.E., Shrivastava S., Gresh L., Balmaseda A., Amedeo P., Hu L., Puri V., Fedorova N.B., Halpin R.A., LaPointe M.P., Cone M.R., **Heberlein-Larson L.**, Kramer L.D., Ciota A.T., Gordon A., Shabman R.S., Das S.R., & Harris E. 2018. "Differing Epidemiological Dynamics of Chikungunya Virus in the Americas During the 2014—2015 Epidemic." *PLOS Neglected Tropical Diseases.*

Tan Y., Tsan-Yuk Lam T., **Heberlein-Larson L.A.**, Smole S.C., Auguste A.J., Hennigan S., Halpin R.A., Fedorova N., Puri V., Stockwell T.B., Shilts M.H., Andreadis T., Armstrong P.M., Tesh R.B., Weaver S.C., Unnasch T.R., Ciota A.T., Kramer L.D., & Das S.R. 2018. Large-Scale Complete-Genome Sequencing and Phylodynamic Analysis of Eastern Equine Encephalitis Virus Reveals Source-Sink Transmission Dynamics in the United States, *J Virol* e00074-18. DOI: 10.1128/JVI.00074-18.

Publications With Department Authors (Continued)

Trepka M.J., Sheehan D.M., Fennie K.P., Mauck D.E., Lieb S., **Maddox L.M.,** & Niyonsenga T. Racial/Ethnic Disparities in Failure to Initiate HIV Care: Role of HIV Testing Site, Individual Factors, and Neighborhood Factors, Florida, 2014–2015. *Journal of Health Care for the Poor and Underserved*, 2018, August; 29(3), 1153-1175.

Additional Reports Available Online

Vaccine-Preventable Disease Surveillance Report

FloridaHealth.gov/VPD

Florida Flu Review

FloridaHealth.gov/FloridaFlu

Respiratory Syncytial Virus Surveillance Activity Report

FloridaHealth.gov/RSV

Mosquito-Borne Disease Surveillance

FloridaHealth.gov/diseases-and-conditions/mosquito-borne-diseases/surveillance.html

Florida Behavioral Risk Factor Surveillance System (BRFSS) Reports

FloridaHealth.gov/statistics-and-data/survey-data/behavioral-risk-factor-surveillance-system/index.html

Florida Youth Tobacco Survey (FYTS) Reports

FloridaHealth.gov/statistics-and-data/survey-data/florida-youth-survey/florida-youth-tobacco-survey/index.html

Florida Youth Risk Behavior Survey (YRBS) Reports

FloridaHealth.gov/statistics-and-data/survey-data/florida-youth-survey/youth-risk-behavior-survey/index.html

Florida Middle School Health Behavior Survey (MSHBS) Reports

FloridaHealth.gov/statistics-and-data/survey-data/florida-youth-survey/middle-school-health-behavior-survey/index.html

Florida Pregnancy Risk Assessment Monitoring System (PRAMS) Reports

FloridaHealth.gov/statistics-and-data/survey-data/pregnancy-risk-assessment-monitoring-system/index.html

Appendices

Section 9

Appendices

Appendix I: Summary Data Tables

Table 1: Number of Common Reportable Diseases/Conditions, Florida, 2009–2018

Reportable disease/condition	10-year trend	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Campylobacteriosis		1,120	1,211	2,039	1,964	2,027	2,195	3,351	3,262	4,318	4,729
Carbon Monoxide Poisoning		43	172	85	69	161	157	227	224	573	168
Chlamydia (Excluding Neonatal Conjunctivitis)		72,911	74,745	76,050	77,871	80,787	83,127	90,633	94,719	100,002	105,058
Ciguatera Fish Poisoning		49	20	48	30	49	63	56	33	27	69
Creutzfeldt-Jakob Disease (CJD)		15	13	16	23	20	24	28	20	33	24
Cryptosporidiosis		497	408	437	470	409	1,905	856	582	556	586
Cyclosporiasis		40	63	58	25	47	33	32	37	113	76
Dengue Fever		55	195	71	124	160	92	79	62	26	87
Ehrlichiosis		11	10	15	23	21	29	18	28	16	40
Giardiasis, Acute		1,981	2,139	1,255	1,095	1,114	1,165	1,038	1,128	997	1,105
Gonorrhea (Excluding Neonatal Conjunctivitis)		20,878	20,169	19,704	19,554	21,006	20,597	24,186	28,153	31,680	32,747
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]		29	32	23	24	22	32	37	34	36	45
Hepatitis A		191	178	110	118	133	107	122	122	276	548
Hepatitis B, Acute		318	315	235	292	375	408	519	709	745	783
Hepatitis B, Chronic		4,268	4,265	4,279	4,180	4,271	4,914	4,827	4,972	4,927	4,763
Hepatitis B, Pregnant Women[1]		598	438	481	413	482	510	476	447	464	395
Hepatitis C, Acute		77	105	100	168	220	183	210	301	405	485
Hepatitis C, Chronic (Including Perinatal)		15,111	15,488	18,363	19,018	19,757	22,412	22,981	29,457	26,411	22,215
HIV[2]		5,183	4,706	4,662	4,482	4,360	4,588	4,679	4,789	4,766	4,906
Lead Poisoning Cases in Children <6 Years Old[1,2]		–	239	179	151	172	153	146	166	827	712
Lead Poisoning Cases in People >=6 Years Old[1,2]		–	672	556	697	436	514	572	501	1,311	1,298
Legionellosis		193	172	185	213	250	280	306	328	435	496
Listeriosis		25	54	38	33	41	49	42	43	54	47
Lyme Disease		110	84	115	118	138	155	166	216	210	169
Malaria		93	139	99	59	54	52	40	62	58	58
Meningitis, Bacterial or Mycotic		210	183	192	191	153	132	122	112	110	113
Mercury Poisoning		21	12	7	10	5	15	26	19	47	36
Mumps		18	10	11	5	1	1	10	16	74	55
Pertussis		497	328	312	575	732	719	339	334	358	326
Pesticide-Related Illness and Injury, Acute[3]		402	396	451	71	68	75	58	30	61	50
Rabies, Animal		161	121	120	102	103	94	83	59	79	111
Rabies, Possible Exposure		1,853	2,114	2,410	2,371	2,721	2,995	3,364	3,302	3,478	4,083
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis		10	14	12	31	24	29	21	12	25	22
Salmonellosis		6,723	6,273	5,912	6,517	6,127	6,014	5,915	5,608	6,553	7,224
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection		94	85	103	93	121	117	135	99	187	809
Shigellosis		461	1,212	2,635	1,702	1,018	2,396	1,737	753	1,307	1,510
Streptococcus pneumoniae Invasive Disease, Drug-Resistant		779	816	645	457	537	391	167	207	251	201
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible		701	693	679	531	552	401	264	412	373	366
Syphilis (Excluding Congenital)		3,844	4,053	4,110	4,472	5,015	5,973	7,118	8,273	8,855	10,612
Syphilis, Congenital[1]		19	25	33	39	35	48	38	60	93	108
Tuberculosis		822	828	751	675	646	590	601	639	549	591
Varicella (Chickenpox)		1,125	977	861	815	659	570	740	733	656	853
Vibriosis (Excluding Cholera)		112	130	155	147	191	166	196	187	274	242
West Nile Virus Disease		3	12	23	74	7	17	13	8	6	39
Zika Virus Disease and Infection		NR	NR	NR	NR	NR	NR	NR	1,456	277	115

NR Not reportable.

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 The number of cases reported in past years should not change for most reportable diseases. Different reconciliation processes are in place for HIV. As a result, case numbers for prior years in the above tables may vary from previous reports. In 2017, lead poisoning cases were reviewed and re-evaluated, resulting in small changes in the number of cases reported in previous reports.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Appendices

Table 2: Rate Per 100,000 Population of Common Reportable Diseases/Conditions, Florida, 2009–2018

Reportable disease/condition	10-year trend	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Campylobacteriosis		6.0	6.4	10.8	10.3	10.5	11.2	16.8	16.1	21.0	22.6
Carbon Monoxide Poisoning		0.2	0.9	0.4	0.4	0.8	0.8	1.1	1.1	2.8	0.8
Chlamydia (Excluding Neonatal Conjunctivitis)		389.7	397.2	401.5	407.3	418.3	424.6	455.5	468.2	486.5	501.3
Ciguatera Fish Poisoning		0.3	0.1	0.3	0.2	0.3	0.3	0.3	0.2	0.1	0.3
Creutzfeldt-Jakob Disease (CJD)		–	–	–	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Cryptosporidiosis		2.7	2.2	2.3	2.5	2.1	9.7	4.3	2.9	2.7	2.8
Cyclosporiasis		0.2	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.5	0.4
Dengue Fever		0.3	1.0	0.4	0.6	0.8	0.5	0.4	0.3	0.1	0.4
Ehrlichiosis		–	–	–	0.1	0.1	0.1	–	0.1	–	0.2
Giardiasis, Acute		10.6	11.4	6.6	5.7	5.8	5.9	5.2	5.6	4.9	5.3
Gonorrhea (Excluding Neonatal Conjunctivitis)		111.6	107.2	104.0	102.3	108.8	105.2	121.6	139.2	154.1	156.3
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]		2.5	3.0	2.1	2.2	2.1	3.0	3.4	3.1	3.2	4.0
Hepatitis A		1.0	0.9	0.6	0.6	0.7	0.5	0.6	0.6	1.3	2.6
Hepatitis B, Acute		1.7	1.7	1.2	1.5	1.9	2.1	2.6	3.5	3.6	3.7
Hepatitis B, Chronic		22.8	22.7	22.6	21.9	22.1	25.1	24.3	24.6	24.0	22.7
Hepatitis B, Pregnant Women[1]		17.0	12.4	13.4	11.5	13.3	14.0	12.9	12.0	12.3	10.3
Hepatitis C, Acute		0.4	0.6	0.5	0.9	1.1	0.9	1.1	1.5	2.0	2.3
Hepatitis C, Chronic (Including Perinatal)		80.8	82.3	96.9	99.5	102.3	114.5	115.5	145.6	128.5	106.0
HIV[2]		27.7	25.0	24.6	23.4	22.6	23.4	23.5	23.7	23.2	23.4
Lead Poisoning Cases in Children <6 Years Old[1,2]		–	18.8	13.8	11.7	13.3	11.8	11.1	12.4	61.2	52.0
Lead Poisoning Cases in People >=6 Years Old[1,2]		–	3.8	3.2	3.9	2.4	2.8	3.1	2.7	6.8	6.6
Legionellosis		1.0	0.9	1.0	1.1	1.3	1.4	1.5	1.6	2.1	2.4
Listeriosis		0.1	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2
Lyme Disease		0.6	0.4	0.6	0.6	0.7	0.8	0.8	1.1	1.0	0.8
Malaria		0.5	0.7	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.3
Meningitis, Bacterial or Mycotic		1.1	1.0	1.0	1.0	0.8	0.7	0.6	0.6	0.5	0.5
Mercury Poisoning		0.1	–	–	–	–	–	0.1	–	0.2	0.2
Mumps		–	–	–	–	–	–	–	–	0.4	0.3
Pertussis		2.7	1.7	1.6	3.0	3.8	3.7	1.7	1.7	1.7	1.6
Pesticide-Related Illness and Injury, Acute[3]		2.1	2.1	2.4	0.4	0.4	0.4	0.3	0.1	0.3	0.2
Rabies, Animal		–	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure		9.9	11.2	12.7	12.4	14.1	15.3	16.9	16.3	16.9	19.5
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis		–	–	–	0.2	0.1	0.1	0.1	–	0.1	0.1
Salmonellosis		35.9	33.3	31.2	34.1	31.7	30.7	29.7	27.7	31.9	34.5
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection		0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.5	0.9	3.9
Shigellosis		2.5	6.4	13.9	8.9	5.3	12.2	8.7	3.7	6.4	7.2
Streptococcus pneumoniae Invasive Disease, Drug-Resistant		4.2	4.3	3.4	2.4	2.8	2.0	0.8	1.0	1.2	1.0
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible		3.7	3.7	3.6	2.8	2.9	2.0	1.3	2.0	1.8	1.7
Syphilis (Excluding Congenital)		20.5	21.5	21.7	23.4	26.0	30.5	35.8	40.9	43.1	50.6
Syphilis, Congenital[1]		8.6	11.7	15.5	18.3	16.3	21.8	16.9	26.7	41.6	48.8
Tuberculosis		4.4	4.4	4.0	3.5	3.3	3.0	3.0	3.2	2.7	2.8
Varicella (Chickenpox)		6.0	5.2	4.5	4.3	3.4	2.9	3.7	3.6	3.2	4.1
Vibriosis (Excluding Cholera)		0.6	0.7	0.8	0.8	1.0	0.8	1.0	0.9	1.3	1.2
West Nile Virus Disease		–	–	0.1	0.4	–	–	–	–	–	0.2
Zika Virus Disease and Infection		NR	NR	NR	NR	NR	NR	NR	7.2	1.3	0.5

NR Not reportable.

– Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table. Animal rabies is only expressed as the number of cases because no reliable denominators exist for animal populations. Prior to 2010, lead poisoning case data were primarily stored outside of the state's reportable disease surveillance system and are not included in this table.

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 The number of cases reported in past years should not change for most reportable diseases. Different reconciliation processes are in place for HIV. As a result, case numbers for prior years in the above tables may vary from previous reports. In 2017, lead poisoning cases were reviewed and re-evaluated, resulting in small changes in the number of cases reported in previous reports.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Appendices

Table 3: Number of Uncommon Reportable Diseases/Conditions, Florida, 2009–2018

Reportable disease/condition	10-year trend	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Amebic Encephalitis		3	0	1	0	1	1	1	1	0	4
Anaplasmosis		3	3	11	5	2	7	5	6	9	19
Anthrax		0	0	1	0	0	0	0	0	0	0
Arboviral Disease, Other		NR	NR	NR	NR	NR	0	0	0	0	1
Arsenic Poisoning		9	14	7	5	13	2	16	21	14	14
Babesiosis		NR	NR	NR	NR	NR	NR	NR	0	9	19
Botulism, Foodborne		0	0	0	0	0	0	0	0	0	0
Botulism, Infant		1	1	0	1	0	0	0	0	1	1
Botulism, Other		0	0	0	0	0	0	1	1	0	0
Botulism, Wound		0	0	0	0	0	0	0	0	0	0
Brucellosis		9	9	6	17	9	3	8	2	11	13
California Serogroup Virus Disease		0	0	1	0	0	1	1	0	0	3
Chancroid		1	1	0	0	0	0	0	0	0	0
Chikungunya Fever		NR	NR	NR	NR	NR	442	121	10	4	6
Cholera (*Vibrio cholerae* Type O1)		0	4	11	7	4	2	3	1	1	0
Conjunctivitis in Neonates <14 Days Old, Chlamydia[1]		21	32	26	19	12	13	16	21	26	24
Conjunctivitis in Neonates <14 Days Old, Gonorrhea[1]		2	2	0	0	3	2	1	9	7	3
Diphtheria		0	0	0	0	0	0	0	0	0	0
Eastern Equine Encephalitis		0	4	0	2	2	1	0	1	1	3
Glanders (*Burkholderia mallei*)		0	0	0	0	0	0	0	0	0	0
Granuloma Inguinale		0	0	0	0	0	0	0	0	0	0
Hansen's Disease (Leprosy)		7	12	11	10	10	10	29	18	17	18
Hantavirus Infection		0	0	0	0	0	0	0	0	0	0
Hemolytic Uremic Syndrome (HUS)		5	8	4	1	14	7	5	8	11	8
Hepatitis B, Perinatal		0	1	0	1	2	1	0	0	1	2
Hepatitis D		1	0	0	0	1	1	1	1	2	4
Hepatitis E		2	1	7	1	0	3	6	5	8	7
Hepatitis G		1	0	2	0	0	0	0	0	0	0
Herpes Simplex Virus in Infants <60 Days Old[1]		73	72	63	49	51	38	30	14	33	26
Human Papillomavirus in Children <=12 Years Old		0	0	0	0	0	0	0	0	0	0
Leptospirosis		1	2	4	1	1	0	4	2	3	7
Lymphogranuloma Venereum		0	0	0	0	0	0	0	0	1	0
Measles (Rubeola)		5	1	8	0	7	0	5	5	3	15
Melioidosis (*Burkholderia pseudomallei*)		0	0	0	1	0	0	0	0	0	0
Meningococcal Disease		52	60	51	45	58	50	23	18	21	18
Middle East Respiratory Syndrome (MERS)		NR	NR	NR	NR	NR	1	0	0	0	0
Neurotoxic Shellfish Poisoning		0	0	0	0	0	0	0	0	2	1
Plague		0	0	0	0	0	0	0	0	0	0
Poliomyelitis		0	0	0	0	0	0	0	0	0	0
Psittacosis (Ornithosis)		0	0	0	0	0	1	1	0	0	0
Q Fever (*Coxiella burnetii*)		1	2	3	1	2	1	1	0	3	2
Rabies, Human		0	0	0	0	0	0	0	0	1	1
Ricin Toxin Poisoning		0	0	0	0	1	0	4	1	0	4
Rubella		0	0	0	0	0	0	0	1	0	0
Salmonella Paratyphi Infection		18	9	11	6	6	5	9	13	4	0
Salmonella Typhi Infection		19	22	8	11	11	13	6	12	20	13
Saxitoxin Poisoning (Paralytic Shellfish Poisoning)		0	0	0	0	3	0	0	1	0	4
Severe Acute Respiratory Syndrome (SARS)		0	0	0	0	0	0	0	0	0	0
Smallpox		0	0	0	0	0	0	0	0	0	0
St. Louis Encephalitis		0	0	0	0	0	2	0	0	0	0
Staphylococcal Enterotoxin B Poisoning		0	0	0	0	0	0	0	0	0	0

NR Not reportable.

1 Age in days is determined by the age of the child on the specimen collection date.

Table 3: Number of Uncommon Reportable Diseases/Conditions, Florida, 2009–2018

Reportable disease/condition	10-year trend	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Staphylococcus aureus Infection, Intermediate Resistance to Vancomycin (VISA)		6	1	3	7	5	4	4	4	5	2
Staphylococcus aureus Infection, Resistant to Vancomycin (VRSA)		0	0	0	0	0	0	0	0	0	0
Tetanus		0	5	3	4	5	2	4	5	2	1
Trichinellosis (Trichinosis)		0	0	0	0	0	0	0	0	0	0
Tularemia (*Francisella tularensis*)		1	0	0	0	1	1	0	0	0	2
Typhus Fever		1	0	2	0	0	0	0	0	0	0
Vaccinia Disease		0	0	1	0	0	0	1	0	0	0
Venezuelan Equine Encephalitis		0	0	0	0	0	0	0	0	0	0
Viral Hemorrhagic Fever		0	0	0	0	0	0	0	0	0	0
Western Equine Encephalitis		0	0	0	0	0	0	0	0	0	0
Yellow Fever		0	0	0	0	0	0	0	0	0	0

NR Not reportable.

1 Age in days is determined by the age of the child on the specimen collection date.

Table 4: Number of Common Reportable Diseases/Conditions by Age Group (in Years), Florida, 2018

Reportable disease/condition	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+
Campylobacteriosis	159	504	221	131	158	182	470	398	523	671	693	451	168
Carbon Monoxide Poisoning	0	3	9	5	16	10	26	16	25	21	23	9	5
Chlamydia (Excluding Neonatal Conjunctivitis)	0	0	7	601	26,769	38,511	29,058	6,646	2,380	904	152	25	5
Ciguatera Fish Poisoning	0	0	0	1	3	3	9	11	19	11	9	2	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0	0	0	0	0	1	9	10	4	0
Cryptosporidiosis	9	73	30	20	21	31	75	55	51	80	69	43	29
Cyclosporiasis	0	1	1	0	1	2	5	13	19	17	13	3	1
Dengue Fever	1	0	0	3	1	3	5	9	35	14	12	4	0
Ehrlichiosis	0	0	0	0	0	0	3	5	5	9	11	6	1
Giardiasis, Acute	14	141	83	38	53	54	140	110	146	141	103	64	18
Gonorrhea (Excluding Neonatal Conjunctivitis)	0	3	6	125	5,091	9,233	11,485	4,001	1,823	810	146	23	1
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]	30	15	0	0	0	0	0	0	0	0	0	0	0
Hepatitis A	0	2	2	3	8	27	171	152	102	49	26	4	2
Hepatitis B, Acute	0	0	0	0	8	19	71	232	227	139	63	18	6
Hepatitis B, Chronic[2]	1	1	8	7	61	165	764	1,123	949	891	557	172	55
Hepatitis B, Pregnant Women[1]	0	0	0	0	5	35	234	121	0	0	0	0	0
Hepatitis C, Acute	0	0	1	0	9	43	137	83	74	74	48	13	2
Hepatitis C, Chronic (Including Perinatal)[2]	15	40	7	6	150	1,217	5,547	4,316	3,504	4,856	2,090	321	85
HIV	7	1	3	7	166	638	1,642	955	829	500	127	29	2
Lead Poisoning Cases in Children <6 Years Old[1]	27	648	37	0	0	0	0	0	0	0	0	0	0
Lead Poisoning Cases in People >=6 Years Old[1]	0	0	52	45	37	146	293	211	223	148	76	51	16
Legionellosis	0	0	0	0	2	5	13	34	74	111	137	90	30
Listeriosis	1	0	0	0	0	0	5	5	0	7	9	10	10
Lyme Disease	0	1	12	19	6	5	16	7	24	28	30	20	1
Malaria	0	1	0	0	1	6	9	13	13	10	4	0	1
Meningitis, Bacterial or Mycotic	27	7	2	3	4	3	10	17	9	12	11	7	1
Mercury Poisoning	0	0	0	0	0	1	5	9	3	7	6	3	2
Mumps	0	4	3	9	1	3	13	6	6	4	3	3	0
Pertussis	78	58	30	34	30	10	14	17	19	12	14	5	5
Pesticide-Related Illness and Injury, Acute[3]	0	2	1	2	2	3	9	13	5	6	5	2	0
Rabies, Possible Exposure[2]	57	152	184	211	299	326	693	577	556	505	317	151	47
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	1	0	2	0	2	5	2	9	1	0
Salmonellosis[2]	1,317	1,412	502	247	193	212	450	431	570	687	668	376	155
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	44	202	54	48	54	32	82	52	46	64	71	43	17
Shigellosis	33	441	291	86	50	68	169	111	92	74	60	25	9
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	5	11	2	1	0	2	11	18	24	58	36	24	9
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	12	27	7	6	0	7	16	21	60	67	66	46	31
Syphilis (Excluding Congenital)	0	0	0	3	373	1,424	3,693	2,181	1,827	906	160	37	8
Syphilis, Congenital[1]	108	0	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis	2	6	11	5	26	28	89	96	89	103	78	45	13
Varicella (Chickenpox)	79	184	170	78	44	46	89	82	60	13	2	5	1
Vibriosis (Excluding Cholera)	0	7	13	7	8	11	21	22	28	45	39	31	10
West Nile Virus Disease	0	0	1	0	0	0	1	6	3	7	7	13	1
Zika Virus Disease and Infection	1	0	0	0	4	16	55	31	3	4	1	0	0

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 Age is unknown for 1 ciguatera fish poisoning case, 9 chronic hepatitis B cases, 1 acute hepatitis C case, 61 chronic hepatitis C cases, 8 possible rabies exposure cases, 4 salmonellosis cases, 1 scombroid poisoning case and 1 shigellosis case.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Table 5: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by Age Group (in Years), Florida, 2018

Reportable disease/condition	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+
Campylobacteriosis	73.4	54.7	19.2	11.1	13.1	14.3	17.1	15.8	18.9	24.0	29.7	34.4	30.4
Carbon Monoxide Poisoning	–	–	–	–	–	–	0.9	–	0.9	0.8	1.0	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	–	–	–	50.9	2,225.2	3,034.5	1,059.1	264.0	86.1	32.4	6.5	1.9	–
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	7.9	2.6	1.7	1.7	2.4	2.7	2.2	1.8	2.9	3.0	3.3	5.2
Cyclosporiasis	–	–	–	–	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	1.3	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	15.3	7.2	3.2	4.4	4.3	5.1	4.4	5.3	5.1	4.4	4.9	–
Gonorrhea (Excluding Neonatal Conjunctivitis)	–	–	–	10.6	423.2	727.5	418.6	158.9	65.9	29.0	6.3	1.8	–
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]	13.8	–	–	–	–	–	–	–	–	–	–	–	–
Hepatitis A	–	–	–	–	–	2.1	6.2	6.0	3.7	1.8	1.1	–	–
Hepatitis B, Acute	–	–	–	–	–	–	2.6	9.2	8.2	5.0	2.7	–	–
Hepatitis B, Chronic[2]	–	–	–	–	5.1	13.0	27.8	44.6	34.3	31.9	23.9	13.1	9.9
Hepatitis B, Pregnant Women[1]	–	–	–	–	–	5.7	17.3	9.5	–	–	–	–	–
Hepatitis C, Acute	–	–	–	–	–	3.4	5.0	3.3	2.7	2.7	2.1	–	–
Hepatitis C, Chronic (Including Perinatal)[2]	–	4.3	–	–	12.5	95.9	202.2	171.4	126.7	173.9	89.5	24.5	15.4
HIV	–	–	–	–	13.8	50.3	59.8	37.9	30.0	17.9	5.4	2.2	–
Lead Poisoning Cases in Children <6 Years Old[1]	12.5	70.3	16.1	–	–	–	–	–	–	–	–	–	–
Lead Poisoning Cases in People >=6 Years Old[1]	–	–	5.6	3.8	3.1	11.5	10.7	8.4	8.1	5.3	3.3	3.9	–
Legionellosis	–	–	–	–	–	–	–	1.4	2.7	4.0	5.9	6.9	5.4
Listeriosis	–	–	–	–	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	0.9	1.0	1.3	1.5	–
Malaria	–	–	–	–	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	12.5	–	–	–	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–	–	–	–	–
Pertussis	36.0	6.3	2.6	2.9	2.5	–	–	–	–	–	–	–	–
Pesticide-Related Illness and Injury, Acute[3]	–	–	–	–	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure[2]	26.3	16.5	16.0	17.9	24.9	25.7	25.3	22.9	20.1	18.1	13.6	11.5	8.5
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–	–	–	–	–
Salmonellosis[2]	607.8	153.3	43.6	20.9	16.0	16.7	16.4	17.1	20.6	24.6	28.6	28.7	28.0
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	20.3	21.9	4.7	4.1	4.5	2.5	3.0	2.1	1.7	2.3	3.0	3.3	–
Shigellosis	15.2	47.9	25.3	7.3	4.2	5.4	6.2	4.4	3.3	2.7	2.6	1.9	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	0.9	2.1	1.5	1.8	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	2.9	–	–	–	–	–	0.8	2.2	2.4	2.8	3.5	5.6
Syphilis (Excluding Congenital)	–	–	–	–	31.0	112.2	134.6	86.6	66.1	32.5	6.9	2.8	–
Syphilis, Congenital[1]	48.8	–	–	–	–	–	–	–	–	–	–	–	–
Tuberculosis	–	–	–	–	2.2	2.2	3.2	3.8	3.2	3.7	3.3	3.4	–
Varicella (Chickenpox)	36	20	15	7	4	4	3	3	2	–	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	1	1	1	2	2	2	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	–	–	2.0	1.2	–	–	–	–	–

– Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 Age is unknown for 1 ciguatera fish poisoning case, 9 chronic hepatitis B cases, 1 acute hepatitis C case, 61 chronic hepatitis C cases, 8 possible rabies exposure cases, 4 salmonellosis cases, 1 scombroid poisoning case and 1 shigellosis case.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Table 6: Top 10 Reportable Diseases/Conditions by Age Group (in Years), Florida, 2018

Rank	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+
	Age group (in years)												
1	Salmonellosis (Count: 1,317) (Rate: 607.8)	Salmonellosis (Count: 1,412) (Rate: 153.3)	Salmonellosis (Count: 502) (Rate: 43.6)	Chlamydia (Count: 601) (Rate: 50.9)	Chlamydia (Count: 26,769) (Rate: 2,225.2)	Chlamydia (Count: 38,511) (Rate: 3,034.5)	Chlamydia (Count: 29,058) (Rate: 1,059.1)	Chlamydia (Count: 6,646) (Rate: 264.0)	Hepatitis C, Chronic (Count: 3,504) (Rate: 126.7)	Hepatitis C, Chronic (Count: 4,856) (Rate: 173.9)	Hepatitis C, Chronic (Count: 2,090) (Rate: 89.5)	Campylobacteriosis (Count: 451) (Rate: 34.4)	Campylobacteriosis (Count: 168) (Rate: 30.4)
2	Campylobacteriosis (Count: 159) (Rate: 73.4)	Lead Poisoning (Count: 648) (Rate: 70.3)	Shigellosis (Count: 291) (Rate: 25.3)	Salmonellosis (Count: 247) (Rate: 20.9)	Gonorrhea (Count: 5,091) (Rate: 423.2)	Gonorrhea (Count: 9,233) (Rate: 727.5)	Gonorrhea (Count: 11,485) (Rate: 418.6)	Hepatitis C, Chronic (Count: 4,316) (Rate: 171.4)	Chlamydia (Count: 2,380) (Rate: 86.1)	Syphilis (Count: 906) (Rate: 32.5)	Campylobacteriosis (Count: 693) (Rate: 29.7)	Salmonellosis (Count: 376) (Rate: 28.7)	Salmonellosis (Count: 155) (Rate: 28.0)
3	Syphilis, Congenital (Count: 108) (Rate: 48.8)	Campylobacteriosis (Count: 504) (Rate: 54.7)	Campylobacteriosis (Count: 221) (Rate: 19.2)	Rabies, Possible Exposure (Count: 211) (Rate: 17.9)	Syphilis (Count: 373) (Rate: 31.0)	Syphilis (Count: 1,424) (Rate: 112.2)	Hepatitis C, Chronic (Count: 5,547) (Rate: 202.2)	Gonorrhea (Count: 4,001) (Rate: 158.9)	Syphilis (Count: 1,827) (Rate: 66.1)	Chlamydia (Count: 904) (Rate: 32.4)	Salmonellosis (Count: 668) (Rate: 28.6)	Hepatitis C, Chronic (Count: 321) (Rate: 24.5)	Hepatitis C, Chronic (Count: 85) (Rate: 15.4)
4	Varicella (Chickenpox) (Count: 79) (Rate: 36.5)	Shigellosis (Count: 441) (Rate: 47.9)	Rabies, Possible Exposure (Count: 184) (Rate: 16.0)	Campylobacteriosis (Count: 131) (Rate: 11.1)	Rabies, Possible Exposure (Count: 299) (Rate: 24.9)	Hepatitis C, Chronic (Count: 1,217) (Rate: 95.9)	Syphilis (Count: 3,693) (Rate: 134.6)	Syphilis (Count: 2,181) (Rate: 86.6)	Gonorrhea (Count: 1,823) (Rate: 65.9)	Hepatitis B, Chronic (Count: 891) (Rate: 31.9)	Hepatitis B, Chronic (Count: 557) (Rate: 23.9)	Hepatitis B, Chronic (Count: 172) (Rate: 13.1)	Hepatitis B, Chronic (Count: 55) (Rate: 9.9)
5	Pertussis (Count: 78) (Rate: 36.0)	Shiga Toxin-Producing *E coli* (Count: 202) (Rate: 21.9)	Varicella (Chickenpox) (Count: 170) (Rate: 14.8)	Gonorrhea (Count: 125) (Rate: 10.6)	Salmonellosis (Count: 193) (Rate: 16.0)	HIV (Count: 638) (Rate: 50.3)	HIV (Count: 1,642) (Rate: 59.8)	Hepatitis B, Chronic (Count: 1,123) (Rate: 44.6)	Hepatitis B, Chronic (Count: 949) (Rate: 34.3)	Gonorrhea (Count: 810) (Rate: 29.0)	Rabies, Possible Exposure (Count: 317) (Rate: 13.6)	Rabies, Possible Exposure (Count: 151) (Rate: 11.5)	Rabies, Possible Exposure (Count: 47) (Rate: 8.5)
6	Rabies, Possible Exposure (Count: 57) (Rate: 26.3)	Varicella (Chickenpox) (Count: 184) (Rate: 20.0)	Giardiasis, Acute (Count: 83) (Rate: 7.2)	Shigellosis (Count: 86) (Rate: 7.3)	HIV (Count: 166) (Rate: 13.8)	Rabies, Possible Exposure (Count: 326) (Rate: 25.7)	Hepatitis B, Chronic (Count: 764) (Rate: 27.8)	HIV (Count: 955) (Rate: 37.9)	HIV (Count: 829) (Rate: 30.0)	Salmonellosis (Count: 687) (Rate: 24.6)	Syphilis (Count: 160) (Rate: 6.9)	Legionellosis (Count: 90) (Rate: 6.9)	*S. pneumoniae* Invasive Disease (Count: 40) (Rate: 7.2)
7	Shiga Toxin-Producing *E coli* (Count: 44) (Rate: 20.3)	Rabies, Possible Exposure (Count: 152) (Rate: 16.5)	Shiga Toxin-Producing *E coli* (Count: 54) (Rate: 4.7)	Varicella (Chickenpox) (Count: 78) (Rate: 6.6)	Campylobacteriosis (Count: 158) (Rate: 13.1)	Salmonellosis (Count: 212) (Rate: 16.7)	Rabies, Possible Exposure (Count: 693) (Rate: 25.3)	Rabies, Possible Exposure (Count: 577) (Rate: 22.9)	Salmonellosis (Count: 570) (Rate: 20.6)	Campylobacteriosis (Count: 671) (Rate: 24.0)	Chlamydia (Count: 152) (Rate: 6.5)	*S. pneumoniae* Invasive Disease (Count: 70) (Rate: 5.3)	Legionellosis (Count: 30) (Rate: 5.4)
8	Shigellosis (Count: 33) (Rate: 15.2)	Giardiasis, Acute (Count: 141) (Rate: 15.3)	Lead Poisoning (Count: 52) (Rate: 5.6)	Shiga Toxin-Producing *E coli* (Count: 48) (Rate: 4.1)	Hepatitis C, Chronic (Count: 150) (Rate: 12.5)	Campylobacteriosis (Count: 182) (Rate: 14.3)	Campylobacteriosis (Count: 470) (Rate: 17.1)	Salmonellosis (Count: 431) (Rate: 17.1)	Rabies, Possible Exposure (Count: 556) (Rate: 20.1)	Rabies, Possible Exposure (Count: 505) (Rate: 18.1)	Gonorrhea (Count: 146) (Rate: 6.3)	Giardiasis, Acute (Count: 64) (Rate: 4.9)	Cryptosporidiosis (Count: 29) (Rate: 5.2)
9	*H. influenzae* Invasive Disease (Count: 30) (Rate: 13.8)	Cryptosporidiosis (Count: 73) (Rate: 7.9)	Lead Poisoning (Count: 37) (Rate: 16.1)	Lead Poisoning (Count: 45) (Rate: 3.8)	Hepatitis B, Chronic (Count: 61) (Rate: 5.1)	Hepatitis B, Chronic (Count: 165) (Rate: 13.0)	Salmonellosis (Count: 450) (Rate: 16.4)	Campylobacteriosis (Count: 398) (Rate: 15.8)	Campylobacteriosis (Count: 523) (Rate: 18.9)	HIV (Count: 500) (Rate: 17.9)	Legionellosis (Count: 137) (Rate: 5.9)	Lead Poisoning (Count: 51) (Rate: 3.9)	Giardiasis, Acute (Count: 18) –
10	Lead Poisoning (Count: 27) (Rate: 12.5)	Pertussis (Count: 58) (Rate: 6.3)	Cryptosporidiosis (Count: 30) (Rate: 2.6)	Giardiasis, Acute (Count: 38) (Rate: 3.2)	Shiga Toxin-Producing *E coli* (Count: 54) (Rate: 4.5)	Lead Poisoning (Count: 146) (Rate: 11.5)	Lead Poisoning (Count: 293) (Rate: 10.7)	Hepatitis B, Acute (Count: 232) (Rate: 9.2)	Hepatitis B, Acute (Count: 227) (Rate: 8.2)	Lead Poisoning (Count: 148) (Rate: 5.3)	HIV (Count: 127) (Rate: 5.4)	Tuberculosis (Count: 45) (Rate: 3.4)	Shiga Toxin-Producing *E coli* (Count: 17) –

Enteric Diseases	Tuberculosis	Vector-Borne Diseases	Sexually Transmitted Diseases	Viral Hepatitis
Vaccine-Preventable Diseases	Invasive Bacterial Diseases	Environmental Poisonings	HIV Infection/AIDS	

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

Appendices

Table 7: Number of Common Reportable Diseases/Conditions by Month of Occurrence,[1] Florida, 2018

Selected reportable disease/condition	12-month trend	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Campylobacteriosis		324	278	373	458	479	535	459	430	370	352	346	325
Carbon Monoxide Poisoning		13	6	16	23	14	5	13	8	24	20	13	13
Ciguatera Fish Poisoning		4	8	6	3	6	8	8	5	9	4	6	2
Creutzfeldt-Jakob Disease (CJD)		0	3	2	1	4	3	0	2	4	2	0	3
Cryptosporidiosis		36	38	33	42	47	51	87	61	62	52	42	35
Cyclosporiasis		0	0	0	0	8	33	25	7	2	0	1	0
Dengue Fever		1	0	0	3	1	8	6	9	14	17	19	9
Ehrlichiosis		1	1	2	7	5	8	6	4	3	1	1	1
Giardiasis, Acute		89	91	96	92	85	95	108	119	98	85	84	63
Haemophilus influenzae Invasive Disease in Children <5 Years Old		6	2	2	4	2	4	5	3	3	4	6	4
Hepatitis A		16	12	12	11	21	27	47	57	52	91	108	94
Hepatitis B, Acute		67	51	73	71	65	68	77	57	71	71	59	53
Hepatitis B, Chronic		347	401	409	438	402	379	416	411	426	461	347	326
Hepatitis B, Pregnant Women		37	40	37	39	34	30	35	34	35	33	20	21
Hepatitis C, Acute		50	54	47	43	56	45	44	51	32	24	17	22
Hepatitis C, Chronic (Including Perinatal)		1,826	1,803	2,104	2,006	1,904	1,946	1,797	1,943	1,818	1,850	1,652	1,566
Lead Poisoning Cases in Children <6 Years Old		60	56	69	80	59	62	46	67	61	52	36	64
Lead Poisoning Cases in People >=6 Years Old		107	124	104	122	95	77	124	155	101	108	75	106
Legionellosis		32	39	27	28	47	44	46	55	55	56	36	31
Listeriosis		5	4	3	2	3	2	5	6	5	5	3	4
Lyme Disease		10	5	6	5	13	34	37	15	18	8	11	7
Malaria		4	2	2	6	6	8	7	5	5	6	5	2
Meningitis, Bacterial or Mycotic		11	11	7	8	4	9	11	6	8	13	9	16
Mercury Poisoning		5	1	1	6	10	6	2	4	0	0	0	1
Mumps		8	5	7	5	3	7	0	1	3	3	6	7
Pertussis		28	18	25	16	38	43	36	24	30	36	14	18
Pesticide-Related Illness and Injury, Acute[2]		1	2	6	4	5	7	10	2	10	2	1	0
Rabies, Animal[3]		1	8	9	6	15	9	13	13	12	9	9	7
Rabies, Possible Exposure[4]		321	342	366	322	351	398	337	353	302	333	343	315
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis		0	1	0	4	1	4	3	5	0	3	1	0
Salmonellosis		332	272	340	385	598	772	794	821	840	868	770	432
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection		85	48	63	78	78	71	115	74	63	54	39	41
Shigellosis		89	93	145	120	153	167	151	108	86	134	139	125
Streptococcus pneumoniae Invasive Disease, Drug-Resistant		38	23	24	13	19	14	8	11	10	14	6	21
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible		62	51	44	35	24	27	17	16	18	24	20	28
Varicella (Chickenpox)		50	53	82	62	87	83	62	79	67	50	94	84
Vibriosis (Excluding Cholera)		6	14	15	15	21	32	34	35	23	19	14	14
West Nile Virus Disease		0	0	0	0	0	0	5	13	7	12	2	0
Zika Virus Disease and Infection		14	16	11	6	8	6	7	14	11	9	4	9

1 The earliest date associated with the case was used to determine month of occurrence, unless otherwise noted. Dates associated with cases include illness onset date, diagnosis date, laboratory report date and the date the county health department was notified.

2 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

3 Month of occurrence is based on the month of laboratory report.

4 Month of occurrence is based on the month of exposure.

Note that this table includes all common reportable diseases/conditions except chlamydia, gonorrhea, HIV, syphilis, congenital syphilis and tuberculosis.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Alachua	Baker	Bay	Bradford	Brevard	Broward	Calhoun	Charlotte	Citrus	Clay
Campylobacteriosis	46	6	43	2	60	291	2	20	27	44
Carbon Monoxide Poisoning	0	0	3	0	0	17	0	1	0	0
Chlamydia (Excluding Neonatal Conjunctivitis)	2,476	143	726	104	2,059	11,347	57	281	332	887
Ciguatera Fish Poisoning	0	0	0	0	0	4	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0	1	3	0	0	0	0
Cryptosporidiosis	2	15	3	0	15	31	3	0	2	5
Cyclosporiasis	4	0	0	0	5	4	0	1	0	0
Dengue Fever	0	0	0	0	0	11	0	2	1	0
Ehrlichiosis	6	0	0	0	0	0	0	0	0	1
Giardiasis, Acute	10	6	8	2	21	100	0	11	8	1
Gonorrhea (Excluding Neonatal Conjunctivitis)	816	49	338	41	482	3,855	25	57	140	277
Haemophilus influenzae Invasive Disease in Children <5 Years Old	2	0	2	0	0	1	0	0	1	0
Hepatitis A	2	0	0	0	3	13	0	2	0	0
Hepatitis B, Acute	1	2	2	1	13	51	0	6	20	11
Hepatitis B, Chronic	32	6	38	6	91	621	2	30	25	29
Hepatitis B, Pregnant Women	1	0	5	1	5	120	0	0	2	4
Hepatitis C, Acute	5	0	5	1	9	49	0	6	4	3
Hepatitis C, Chronic (Including Perinatal)	242	46	340	27	627	1,792	15	184	192	277
HIV[1]	43	2	34	5	68	661	2	7	11	29
Lead Poisoning Cases in Children <6 Years Old	6	0	5	1	12	54	1	4	3	5
Lead Poisoning Cases in People >=6 Years Old	4	2	7	0	86	58	1	10	12	12
Legionellosis	3	1	4	1	10	52	0	2	3	2
Listeriosis	0	0	0	0	1	7	0	1	0	0
Lyme Disease	0	0	0	0	9	5	0	0	2	0
Malaria	0	0	0	0	0	13	0	0	0	1
Meningitis, Bacterial or Mycotic	2	0	3	0	2	10	0	0	0	2
Mercury Poisoning	0	0	0	0	0	2	0	0	0	0
Mumps	0	0	0	0	0	18	0	0	0	0
Pertussis	4	0	1	1	1	4	0	0	0	2
Pesticide-Related Illness and Injury, Acute	0	0	0	0	1	3	0	0	0	0
Rabies, Animal	7	0	8	0	10	1	0	0	0	1
Rabies, Possible Exposure	85	0	62	3	128	229	5	0	11	2
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	0	1	0	0	0	0	1
Salmonellosis	64	11	70	11	262	701	4	50	47	108
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	9	1	1	0	12	76	0	1	7	3
Shigellosis	10	12	1	0	15	306	0	3	3	2
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	0	0	2	0	0	24	0	0	2	1
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	0	1	0	0	1	71	0	0	5	6
Syphilis (Excluding Congenital)	130	5	40	12	121	1,772	3	12	13	27
Syphilis, Congenital	2	0	2	0	3	5	0	0	0	0
Tuberculosis	2	0	5	0	10	67	0	5	4	1
Varicella (Chickenpox)	5	2	2	1	5	112	0	1	11	3
Vibriosis (Excluding Cholera)	3	0	5	0	7	16	0	6	3	1
West Nile Virus Disease	0	0	4	0	0	0	0	1	0	2
Zika Virus Disease and Infection	0	0	0	0	0	8	0	1	0	0

1 County totals exclude 97 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018 (Continued)

Reportable disease/condition	Collier	Columbia	DeSoto	Dixie	Duval	Escambia	Flagler	Franklin	Gadsden
Campylobacteriosis	79	26	12	6	213	70	7	1	11
Carbon Monoxide Poisoning	0	5	0	0	1	4	1	0	1
Chlamydia (Excluding Neonatal Conjunctivitis)	1,296	411	134	62	7,136	2,112	360	40	483
Ciguatera Fish Poisoning	5	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0	0	2	1	0	0
Cryptosporidiosis	8	8	0	0	25	2	1	1	9
Cyclosporiasis	1	0	1	0	0	0	0	0	0
Dengue Fever	0	0	0	0	5	0	0	0	0
Ehrlichiosis	0	1	0	2	3	0	1	0	0
Giardiasis, Acute	17	4	3	1	38	8	3	0	4
Gonorrhea (Excluding Neonatal Conjunctivitis)	209	158	45	21	3,512	705	91	23	143
Haemophilus influenzae Invasive Disease in Children <5 Years Old	1	0	0	0	4	1	0	0	0
Hepatitis A	2	0	0	0	2	0	0	0	0
Hepatitis B, Acute	3	4	3	1	48	17	1	0	0
Hepatitis B, Chronic	68	13	2	4	258	79	11	2	6
Hepatitis B, Pregnant Women	15	0	1	0	29	8	0	0	2
Hepatitis C, Acute	7	0	0	2	17	7	0	0	1
Hepatitis C, Chronic (Including Perinatal)	224	110	34	43	1,294	365	90	25	38
HIV[1]	38	10	1	0	296	56	10	1	13
Lead Poisoning Cases in Children <6 Years Old	9	4	3	5	70	12	1	0	5
Lead Poisoning Cases in People >=6 Years Old	16	3	2	0	109	14	0	1	0
Legionellosis	6	0	0	0	29	5	1	0	1
Listeriosis	0	0	0	0	1	1	0	0	1
Lyme Disease	6	0	0	0	5	1	1	0	1
Malaria	0	0	0	0	5	1	0	0	1
Meningitis, Bacterial or Mycotic	0	1	1	0	17	1	0	0	0
Mercury Poisoning	0	0	0	0	0	1	0	0	0
Mumps	1	0	0	0	3	0	0	0	0
Pertussis	5	2	0	0	13	10	0	0	0
Pesticide-Related Illness and Injury, Acute	1	0	0	0	0	0	0	0	0
Rabies, Animal	2	1	0	1	0	1	0	0	0
Rabies, Possible Exposure	68	4	11	4	20	101	41	3	3
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	1	0	1	0	0	0
Salmonellosis	126	41	17	3	336	76	32	5	9
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	6	5	1	5	22	7	4	0	1
Shigellosis	10	13	1	0	37	8	3	0	1
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	4	0	0	0	9	6	4	0	3
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	4	0	1	0	13	15	1	2	3
Syphilis (Excluding Congenital)	54	11	4	4	595	102	15	7	52
Syphilis, Congenital	2	0	0	0	11	3	0	0	0
Tuberculosis	14	0	2	1	49	4	5	0	2
Varicella (Chickenpox)	16	7	2	0	27	9	3	0	4
Vibriosis (Excluding Cholera)	4	0	0	0	8	5	0	0	1
West Nile Virus Disease	0	0	0	0	12	1	0	0	1
Zika Virus Disease and Infection	39	0	0	0	0	0	0	0	0

1 County totals exclude 97 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018 (Continued)

Reportable disease/condition	Gilchrist	Glades	Gulf	Hamilton	Hardee	Hendry	Hernando	Highlands	Hillsborough
Campylobacteriosis	4	0	4	4	7	10	33	16	337
Carbon Monoxide Poisoning	0	0	0	0	1	0	0	2	12
Chlamydia (Excluding Neonatal Conjunctivitis)	48	65	50	98	107	222	632	366	8,817
Ciguatera Fish Poisoning	0	0	0	0	0	1	0	0	2
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0	0	0	0	0	1
Cryptosporidiosis	0	0	0	0	0	1	3	3	76
Cyclosporiasis	0	0	0	0	0	0	1	1	3
Dengue Fever	0	0	0	0	0	0	0	0	6
Ehrlichiosis	0	0	0	0	0	0	0	1	2
Giardiasis, Acute	2	1	1	1	1	1	5	12	62
Gonorrhea (Excluding Neonatal Conjunctivitis)	10	10	18	26	13	48	186	114	2,300
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	0	0	0	0	0	0	3
Hepatitis A	0	0	0	0	0	0	5	0	84
Hepatitis B, Acute	0	1	0	0	0	2	16	3	49
Hepatitis B, Chronic	6	2	1	1	1	6	26	11	325
Hepatitis B, Pregnant Women	0	0	0	0	0	0	2	2	9
Hepatitis C, Acute	0	1	1	0	0	0	3	2	25
Hepatitis C, Chronic (Including Perinatal)	31	14	24	20	19	19	237	88	1,303
HIV[1]	1	3	1	4	2	9	17	6	323
Lead Poisoning Cases in Children <6 Years Old	0	0	2	1	3	2	3	11	82
Lead Poisoning Cases in People >=6 Years Old	0	0	1	2	0	1	8	35	241
Legionellosis	0	0	0	0	0	0	3	2	31
Listeriosis	0	0	0	0	0	0	0	1	3
Lyme Disease	0	0	0	0	0	0	0	0	7
Malaria	0	0	0	0	0	0	0	0	6
Meningitis, Bacterial or Mycotic	0	0	0	0	0	0	0	1	4
Mercury Poisoning	0	0	0	0	0	0	0	0	0
Mumps	0	0	0	0	0	0	0	0	1
Pertussis	0	0	0	0	0	3	0	0	66
Pesticide-Related Illness and Injury, Acute	0	0	0	0	0	0	0	0	12
Rabies, Animal	0	0	0	0	1	0	0	0	10
Rabies, Possible Exposure	0	2	4	2	12	11	150	13	143
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	0	0	0	1	0	1
Salmonellosis	5	1	2	4	9	18	35	28	343
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	0	0	0	2	2	1	4	3	54
Shigellosis	1	0	0	1	0	2	2	1	32
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	0	0	0	0	2	0	0	1	22
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	0	0	0	0	2	0	0	1	17
Syphilis (Excluding Congenital)	5	1	7	4	1	4	22	9	705
Syphilis, Congenital	0	0	0	0	0	0	0	0	13
Tuberculosis	0	0	0	1	2	1	2	2	29
Varicella (Chickenpox)	0	0	0	0	0	2	5	2	68
Vibriosis (Excluding Cholera)	0	0	0	0	0	0	4	0	11
West Nile Virus Disease	0	0	0	0	0	0	0	0	0
Zika Virus Disease and Infection	0	0	0	0	0	0	1	0	1

1 County totals exclude 97 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018 (Continued)

Reportable disease/condition	Holmes	Indian River	Jackson	Jefferson	Lafayette	Lake	Lee	Leon	Levy	Liberty
Campylobacteriosis	3	50	5	4	6	127	240	38	18	1
Carbon Monoxide Poisoning	0	1	0	0	0	1	8	2	0	0
Chlamydia (Excluding Neonatal Conjunctivitis)	86	492	248	65	19	1,220	3,156	3,363	191	43
Ciguatera Fish Poisoning	0	0	0	0	0	0	1	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0	0	1	1	1	0	0
Cryptosporidiosis	0	10	5	0	2	16	45	33	1	0
Cyclosporiasis	0	2	1	0	0	3	8	2	0	0
Dengue Fever	0	0	0	0	0	1	3	0	0	0
Ehrlichiosis	0	1	1	1	0	1	3	3	0	0
Giardiasis, Acute	0	4	0	0	4	18	60	10	6	2
Gonorrhea (Excluding Neonatal Conjunctivitis)	35	130	122	34	11	349	806	1,096	42	8
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	0	1	0	2	3	0	1	0
Hepatitis A	0	0	0	0	0	12	20	1	0	0
Hepatitis B, Acute	2	8	1	0	0	16	26	2	2	1
Hepatitis B, Chronic	0	15	4	1	2	67	106	65	5	2
Hepatitis B, Pregnant Women	0	3	0	0	0	8	10	5	0	0
Hepatitis C, Acute	0	3	1	0	1	8	12	2	0	0
Hepatitis C, Chronic (Including Perinatal)	28	123	99	13	6	296	797	207	39	21
HIV[1]	1	10	5	1	1	53	77	81	4	1
Lead Poisoning Cases in Children <6 Years Old	1	3	0	0	1	2	9	6	1	1
Lead Poisoning Cases in People >=6 Years Old	1	7	2	0	0	11	15	3	2	1
Legionellosis	0	2	0	0	0	12	23	0	2	0
Listeriosis	0	0	0	0	0	0	2	0	0	0
Lyme Disease	0	2	0	0	0	6	11	1	0	0
Malaria	0	0	0	0	0	0	0	0	0	0
Meningitis, Bacterial or Mycotic	0	1	0	0	0	1	1	0	0	0
Mercury Poisoning	0	1	0	0	0	0	0	0	0	0
Mumps	0	0	1	0	0	0	0	1	0	0
Pertussis	0	1	0	0	0	3	8	0	2	0
Pesticide-Related Illness and Injury, Acute	0	0	0	0	0	0	0	0	0	0
Rabies, Animal	2	3	2	0	0	3	3	5	1	0
Rabies, Possible Exposure	9	21	6	1	0	146	205	47	0	1
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	0	0	2	1	1	1	0
Salmonellosis	6	51	15	5	1	163	354	76	14	3
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	1	5	1	1	0	13	50	8	3	0
Shigellosis	0	5	0	0	0	11	34	4	6	1
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	1	3	0	0	0	2	1	6	0	0
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	2	2	0	1	0	7	5	6	0	0
Syphilis (Excluding Congenital)	3	43	24	7	1	71	151	184	8	1
Syphilis, Congenital	0	1	0	0	0	0	4	4	0	0
Tuberculosis	0	2	1	0	0	6	19	12	0	0
Varicella (Chickenpox)	0	6	1	5	0	8	24	4	3	0
Vibriosis (Excluding Cholera)	0	3	1	0	0	4	27	7	2	0
West Nile Virus Disease	0	0	0	0	0	1	1	3	0	0
Zika Virus Disease and Infection	0	0	0	0	0	0	1	0	0	0

1 County totals exclude 97 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018 (Continued)

Reportable disease/condition	Madison	Manatee	Marion	Martin	Miami Dade	Monroe	Nassau	Okaloosa	Okeechobee
Campylobacteriosis	6	64	121	35	815	32	21	97	11
Carbon Monoxide Poisoning	0	1	3	6	34	0	0	1	0
Chlamydia (Excluding Neonatal Conjunctivitis)	92	1,594	1,561	357	13,415	206	271	1,102	154
Ciguatera Fish Poisoning	0	0	0	0	38	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	2	0	2	0	1	0	0
Cryptosporidiosis	1	5	7	6	45	3	9	0	0
Cyclosporiasis	0	0	0	2	3	1	1	0	0
Dengue Fever	0	1	0	0	46	2	0	0	0
Ehrlichiosis	1	1	1	0	0	1	1	0	0
Giardiasis, Acute	2	26	26	14	201	4	6	8	2
Gonorrhea (Excluding Neonatal Conjunctivitis)	45	532	671	70	4,315	41	56	231	19
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	1	0	4	0	0	1	0
Hepatitis A	0	3	13	0	18	1	0	10	1
Hepatitis B, Acute	0	12	7	3	53	8	8	10	13
Hepatitis B, Chronic	4	77	80	23	698	8	11	32	20
Hepatitis B, Pregnant Women	0	5	4	1	21	1	0	1	1
Hepatitis C, Acute	0	6	7	10	63	0	3	5	3
Hepatitis C, Chronic (Including Perinatal)	14	339	656	226	1,404	71	89	231	102
HIV[1]	5	45	41	15	1,224	18	8	18	2
Lead Poisoning Cases in Children <6 Years Old	0	5	3	3	114	1	0	1	2
Lead Poisoning Cases in People >=6 Years Old	0	18	8	7	124	32	1	6	2
Legionellosis	0	11	2	4	65	0	0	0	0
Listeriosis	0	0	0	1	8	0	0	0	0
Lyme Disease	0	4	7	3	8	1	3	6	2
Malaria	0	0	0	0	11	0	0	1	0
Meningitis, Bacterial or Mycotic	0	3	5	1	12	0	2	1	1
Mercury Poisoning	0	1	0	0	7	3	0	0	0
Mumps	0	0	0	1	14	0	0	0	0
Pertussis	0	14	0	1	23	2	1	2	1
Pesticide-Related Illness and Injury, Acute	0	0	0	0	5	0	0	0	0
Rabies, Animal	2	1	5	0	11	0	1	0	0
Rabies, Possible Exposure	9	82	218	60	464	11	21	83	0
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	2	0	0	0	0	2	0
Salmonellosis	10	110	126	104	912	18	58	101	19
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	1	19	8	7	177	2	5	1	0
Shigellosis	1	72	66	13	297	3	3	53	0
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	1	2	1	0	18	1	3	0	0
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	0	2	0	3	57	1	1	2	10
Syphilis (Excluding Congenital)	10	203	108	33	2,838	27	12	35	3
Syphilis, Congenital	0	2	0	0	24	0	0	0	0
Tuberculosis	1	6	3	4	124	4	2	3	0
Varicella (Chickenpox)	0	19	14	11	90	12	0	8	3
Vibriosis (Excluding Cholera)	1	3	3	3	24	0	1	4	0
West Nile Virus Disease	0	1	0	0	1	0	4	0	0
Zika Virus Disease and Infection	0	1	0	0	37	0	0	0	0

1 County totals exclude 97 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018 (Continued)

Reportable disease/condition	Orange	Osceola	Palm Beach	Pasco	Pinellas	Polk	Putnam	Santa Rosa	Sarasota
Campylobacteriosis	207	51	318	150	264	218	28	27	59
Carbon Monoxide Poisoning	3	0	15	5	10	4	2	0	2
Chlamydia (Excluding Neonatal Conjunctivitis)	9,925	1,701	6,039	1,632	4,428	3,568	387	485	1,157
Ciguatera Fish Poisoning	3	0	8	0	1	1	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	1	0	0	1	2	0	0	0
Cryptosporidiosis	27	4	18	12	34	38	3	1	5
Cyclosporiasis	8	0	5	2	4	4	1	0	2
Dengue Fever	4	0	5	0	0	0	0	0	0
Ehrlichiosis	1	1	0	0	1	0	0	0	0
Giardiasis, Acute	59	13	87	24	41	29	3	5	20
Gonorrhea (Excluding Neonatal Conjunctivitis)	2,948	380	1,467	434	1,441	872	147	87	367
Haemophilus influenzae Invasive Disease in Children <5 Years Old	6	0	3	2	0	4	0	0	0
Hepatitis A	93	4	13	66	113	18	0	3	2
Hepatitis B, Acute	42	13	60	58	52	14	3	12	8
Hepatitis B, Chronic	456	71	340	119	240	94	23	26	58
Hepatitis B, Pregnant Women	29	5	44	5	14	0	2	3	3
Hepatitis C, Acute	27	3	39	21	40	10	3	1	16
Hepatitis C, Chronic (Including Perinatal)	1,788	279	1,330	872	1,330	408	93	138	419
HIV[1]	500	104	298	59	182	113	14	8	32
Lead Poisoning Cases in Children <6 Years Old	28	7	73	16	23	53	3	4	8
Lead Poisoning Cases in People >=6 Years Old	60	7	66	44	114	68	3	2	19
Legionellosis	45	6	22	21	26	27	0	2	25
Listeriosis	5	0	5	0	1	3	1	0	2
Lyme Disease	5	6	15	5	12	4	0	2	7
Malaria	3	1	4	1	3	1	0	0	1
Meningitis, Bacterial or Mycotic	3	2	3	2	9	6	1	0	1
Mercury Poisoning	0	0	18	0	1	0	0	0	1
Mumps	0	3	3	2	2	2	0	2	0
Pertussis	10	11	25	26	32	15	0	2	16
Pesticide-Related Illness and Injury, Acute	4	1	14	0	4	3	0	0	0
Rabies, Animal	2	1	4	2	1	3	0	1	1
Rabies, Possible Exposure	68	46	238	211	130	229	18	47	56
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	2	0	2	0	0	2	0
Salmonellosis	384	93	562	151	233	261	53	66	123
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	62	14	67	15	14	43	2	4	8
Shigellosis	137	11	67	15	40	21	15	0	16
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	19	1	12	6	2	13	0	5	0
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	20	5	32	8	8	19	0	5	1
Syphilis (Excluding Congenital)	1,026	150	477	75	440	222	20	17	182
Syphilis, Congenital	9	1	7	0	3	2	0	0	3
Tuberculosis	67	5	35	4	33	13	3	3	3
Varicella (Chickenpox)	41	20	52	12	67	41	0	12	10
Vibriosis (Excluding Cholera)	4	2	19	3	6	10	3	0	5
West Nile Virus Disease	0	0	2	0	0	0	1	0	1
Zika Virus Disease and Infection	12	3	8	0	1	0	0	0	0

1 County totals exclude 97 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018 (Continued)

Reportable disease/condition	Seminole	St. Johns	St. Lucie	Sumter	Suwannee	Taylor	Union	Volusia	Wakulla	Walton	Washington
Campylobacteriosis	59	44	93	27	10	4	4	62	11	13	5
Carbon Monoxide Poisoning	2	2	3	2	0	0	0	13	0	0	0
Chlamydia (Excluding Neonatal Conjunctivitis)	1,984	728	1,304	235	235	93	84	2,103	135	259	90
Ciguatera Fish Poisoning	0	0	5	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	1	1	0	0	0	0	0	2	0	0	0
Cryptosporidiosis	1	5	6	11	3	0	0	12	3	1	1
Cyclosporiasis	1	2	0	2	0	0	0	1	0	0	0
Dengue Fever	0	0	0	0	0	0	0	0	0	0	0
Ehrlichiosis	2	1	0	0	0	0	0	2	0	0	0
Giardiasis, Acute	18	16	13	13	7	2	4	19	2	5	1
Gonorrhea (Excluding Neonatal Conjunctivitis)	646	181	302	85	55	37	19	753	57	98	46
Haemophilus influenzae Invasive Disease in Children <5 Years Old	2	0	0	0	0	0	0	0	0	0	0
Hepatitis A	30	2	2	3	0	0	0	5	0	2	0
Hepatitis B, Acute	17	8	13	5	3	3	1	37	0	6	1
Hepatitis B, Chronic	70	26	75	16	4	2	62	129	1	7	22
Hepatitis B, Pregnant Women	4	2	10	0	0	0	0	8	0	0	0
Hepatitis C, Acute	7	3	14	3	0	0	7	14	0	3	2
Hepatitis C, Chronic (Including Perinatal)	300	233	487	272	46	34	601	768	36	73	227
HIV[1]	75	9	51	4	1	2	2	86	3	1	2
Lead Poisoning Cases in Children <6 Years Old	9	3	10	2	1	2	0	7	3	2	1
Lead Poisoning Cases in People >=6 Years Old	6	4	10	12	4	1	1	10	0	2	0
Legionellosis	16	5	10	2	2	0	1	9	0	0	0
Listeriosis	0	0	0	0	0	0	0	2	0	0	1
Lyme Disease	3	9	3	2	1	0	0	4	0	0	0
Malaria	4	0	0	0	0	0	0	1	0	0	0
Meningitis, Bacterial or Mycotic	3	2	6	0	1	0	0	0	1	1	0
Mercury Poisoning	0	0	0	0	0	0	0	1	0	0	0
Mumps	0	0	0	0	0	0	0	0	1	0	0
Pertussis	4	11	0	0	0	0	0	3	0	1	0
Pesticide-Related Illness and Injury, Acute	0	2	0	0	0	0	0	0	0	0	0
Rabies, Animal	1	1	1	0	3	0	0	2	1	4	1
Rabies, Possible Exposure	134	90	120	21	20	2	2	134	8	2	6
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	1	0	0	0	0	0	0	0	0	0	0
Salmonellosis	122	125	151	34	28	16	5	204	9	30	10
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	9	5	10	7	0	2	1	15	0	1	1
Shigellosis	17	47	11	6	3	1	3	63	0	2	2
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	5	0	2	0	1	0	0	12	0	3	1
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	8	3	2	1	0	3	0	5	1	1	2
Syphilis (Excluding Congenital)	131	36	115	11	6	3	28	130	10	17	17
Syphilis, Congenital	2	0	2	0	0	0	0	3	0	0	0
Tuberculosis	12	2	4	2	1	1	0	3	2	3	0
Varicella (Chickenpox)	17	12	20	4	1	1	1	41	4	2	0
Vibriosis (Excluding Cholera)	3	10	3	2	0	1	0	12	0	2	0
West Nile Virus Disease	0	0	0	0	1	1	0	0	0	0	1
Zika Virus Disease and Infection	1	0	0	0	0	0	0	0	0	1	0

1 County totals exclude 97 Florida Department of Corrections cases.

Appendices

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Alachua	Baker	Bay	Bradford	Brevard	Broward	Calhoun	Charlotte	Citrus	Clay
Campylobacteriosis	17.4	–	23.6	–	10.3	15.3	–	11.4	18.6	20.6
Carbon Monoxide Poisoning	–	–	–	–	–	–	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	938.8	520.2	398.4	370.3	352.5	596.2	372.2	160.2	228.7	415.3
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	–	–	–	–	1.6	–	–	–	–
Cyclosporiasis	–	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	–	–	–	3.6	5.3	–	–	–	–
Gonorrhea (Excluding Neonatal Conjunctivitis)	309.4	178.3	185.5	146.0	82.5	202.6	163.2	32.5	96.4	129.7
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–	–
Hepatitis A	–	–	–	–	–	–	–	–	–	–
Hepatitis B, Acute	–	–	–	–	–	2.7	–	–	13.8	–
Hepatitis B, Chronic	12.1	–	20.9	–	15.6	32.6	–	17.1	17.2	13.6
Hepatitis B, Pregnant Women	–	–	–	–	–	32.6	–	–	–	–
Hepatitis C, Acute	–	–	–	–	–	2.6	–	–	–	–
Hepatitis C, Chronic (Including Perinatal)	91.8	167.3	186.6	96.1	107.4	94.2	–	104.9	132.3	129.7
HIV[1]	16.3	–	18.7	–	11.6	34.7	–	–	–	13.6
Lead Poisoning Cases in Children <6 Years Old	–	–	–	–	–	40.7	–	–	–	–
Lead Poisoning Cases in People >=6 Years Old	–	–	–	–	15.6	3.3	–	–	–	–
Legionellosis	–	–	–	–	–	2.7	–	–	–	–
Listeriosis	–	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–	–
Pertussis	–	–	–	–	–	–	–	–	–	–
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	32.2	–	34.0	–	21.9	12.0	–	–	–	–
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–	–
Salmonellosis	24.3	–	38.4	–	44.9	36.8	–	28.5	32.4	50.6
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	–	–	–	–	–	4.0	–	–	–	–
Shigellosis	–	–	–	–	–	16.1	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	1.3	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	–	–	–	–	3.7	–	–	–	–
Syphilis (Excluding Congenital)	49.3	–	22.0	–	20.7	93.1	–	–	–	12.6
Syphilis, Congenital	–	–	–	–	–	–	–	–	–	–
Tuberculosis	–	–	–	–	–	3.5	–	–	–	–
Varicella (Chickenpox)	–	–	–	–	–	5.9	–	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	–	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	–	–	–	–	–	–

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Collier	Columbia	DeSoto	Dixie	Duval	Escambia	Flagler	Franklin	Gadsden
Campylobacteriosis	21.5	37.4	–	–	22.3	22.1	–	–	–
Carbon Monoxide Poisoning	–	–	–	–	–	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	352.7	590.8	372.8	369.8	747.7	666.1	331.9	323.6	1,002.6
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	–	–	–	2.6	–	–	–	–
Cyclosporiasis	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	–	–	–	4.0	–	–	–	–
Gonorrhea (Excluding Neonatal Conjunctivitis)	56.9	227.1	125.2	125.2	368.0	222.4	83.9	186.1	296.8
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–
Hepatitis A	–	–	–	–	–	–	–	–	–
Hepatitis B, Acute	–	–	–	–	5.0	–	–	–	–
Hepatitis B, Chronic	18.5	–	–	–	27.0	24.9	–	–	–
Hepatitis B, Pregnant Women	–	–	–	–	14.5	–	–	–	–
Hepatitis C, Acute	–	–	–	–	–	–	–	–	–
Hepatitis C, Chronic (Including Perinatal)	61.0	158.1	94.6	256.5	135.6	115.1	83.0	202.3	78.9
HIV[1]	10.3	–	–	–	31.0	17.7	–	–	–
Lead Poisoning Cases in Children <6 Years Old	–	–	–	–	91.4	–	–	–	–
Lead Poisoning Cases in People >=6 Years Old	–	–	–	–	12.4	–	–	–	–
Legionellosis	–	–	–	–	3.0	–	–	–	–
Listeriosis	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–
Pertussis	–	–	–	–	–	–	–	–	–
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	18.5	–	–	–	2.1	31.9	37.8	–	–
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–
Salmonellosis	34.3	58.9	–	–	35.2	24.0	29.5	–	–
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	–	–	–	–	2.3	–	–	–	–
Shigellosis	–	–	–	–	3.9	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	–	–	–	–	–	–	–	–
Syphilis (Excluding Congenital)	14.7	–	–	–	62.3	32.2	–	–	107.9
Syphilis, Congenital	–	–	–	–	–	–	–	–	–
Tuberculosis	–	–	–	–	5.1	–	–	–	–
Varicella (Chickenpox)	–	–	–	–	2.8	–	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	11	–	–	–	–	–	–	–	–

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Appendices

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Gilchrist	Glades	Gulf	Hamilton	Hardee	Hendry	Hernando	Highlands	Hillsborough
Campylobacteriosis	–	–	–	–	–	–	17.8	–	23.7
Carbon Monoxide Poisoning	–	–	–	–	–	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	273.1	492.7	308.0	666.4	390.0	559.4	340.8	354.2	621.2
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	–	–	–	–	–	–	–	5.4
Cyclosporiasis	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	–	–	–	–	–	–	–	4.4
Gonorrhea (Excluding Neonatal Conjunctivitis)	–	–	–	176.8	–	121.0	100.3	110.3	162.1
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–
Hepatitis A	–	–	–	–	–	–	–	–	5.9
Hepatitis B, Acute	–	–	–	–	–	–	–	–	3.5
Hepatitis B, Chronic	–	–	–	–	–	–	14.0	–	22.9
Hepatitis B, Pregnant Women	–	–	–	–	–	–	–	–	–
Hepatitis C, Acute	–	–	–	–	–	–	–	–	1.8
Hepatitis C, Chronic (Including Perinatal)	176.4	–	147.8	136.0	–	–	127.8	85.2	91.8
HIV[1]	–	–	–	–	–	–	–	–	22.8
Lead Poisoning Cases in Children <6 Years Old	–	–	–	–	–	–	–	–	76.1
Lead Poisoning Cases in People >=6 Years Old	–	–	–	–	–	–	–	35.9	18.4
Legionellosis	–	–	–	–	–	–	–	–	2.2
Listeriosis	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–
Pertussis	–	–	–	–	–	–	–	–	4.7
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	–	–	–	–	–	–	80.9	–	10.1
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–
Salmonellosis	–	–	–	–	–	–	18.9	27.1	24.2
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	–	–	–	–	–	–	–	–	3.8
Shigellosis	–	–	–	–	–	–	–	–	2.3
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	1.6
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	–	–	–	–	–	–	–	–
Syphilis (Excluding Congenital)	–	–	–	–	–	–	11.9	–	49.7
Syphilis, Congenital	–	–	–	–	–	–	–	–	–
Tuberculosis	–	–	–	–	–	–	–	–	2.0
Varicella (Chickenpox)	–	–	–	–	–	–	–	–	4.8
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	–	–	–	–	–

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Holmes	Indian River	Jackson	Jefferson	Lafayette	Lake	Lee	Leon	Levy	Liberty
Campylobacteriosis	–	32.9	–	–	–	37.1	33.3	13.1	–	–
Carbon Monoxide Poisoning	–	–	–	–	–	–	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	421.5	323.5	489.3	441.4	–	356.4	437.7	1,158.8	459.7	489.7
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	–	–	–	–	–	6.2	11.4	–	–
Cyclosporiasis	–	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	–	–	–	–	–	8.3	–	–	–
Gonorrhea (Excluding Neonatal Conjunctivitis)	171.5	85.5	240.7	230.9	–	101.9	111.8	377.6	101.1	–
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–	–
Hepatitis A	–	–	–	–	–	–	2.8	–	–	–
Hepatitis B, Acute	–	–	–	–	–	–	3.6	–	–	–
Hepatitis B, Chronic	–	–	–	–	–	19.6	14.7	22.4	–	–
Hepatitis B, Pregnant Women	–	–	–	–	–	–	–	–	–	–
Hepatitis C, Acute	–	–	–	–	–	–	–	–	–	–
Hepatitis C, Chronic (Including Perinatal)	137.2	80.9	195.3	–	–	86.5	110.5	71.3	93.9	239.2
HIV[1]	–	–	–	–	–	15.5	10.7	27.9	–	–
Lead Poisoning Cases in Children <6 Years Old	–	–	–	–	–	–	–	–	–	–
Lead Poisoning Cases in People >=6 Years Old	–	–	–	–	–	–	–	–	–	–
Legionellosis	–	–	–	–	–	–	3.2	–	–	–
Listeriosis	–	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–	–
Pertussis	–	–	–	–	–	–	–	–	–	–
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	–	13.8	–	–	–	42.6	28.4	16.2	–	–
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–	–
Salmonellosis	–	33.5	–	–	–	47.6	49.1	26.2	–	–
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	–	–	–	–	–	–	6.9	–	–	–
Shigellosis	–	–	–	–	–	–	4.7	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	–	–	–	–	–	–	–	–	–
Syphilis (Excluding Congenital)	–	28.3	47.3	–	–	20.7	20.9	63.4	–	–
Syphilis, Congenital	–	–	–	–	–	–	–	–	–	–
Tuberculosis	–	–	–	–	–	–	–	–	–	–
Varicella (Chickenpox)	–	–	–	–	–	–	3.3	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	3.7	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	–	–	–	–	–	–

– Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Madison	Manatee	Marion	Martin	Miami Dade	Monroe	Nassau	Okaloosa	Okeechobee
Campylobacteriosis	–	16.8	34.1	22.5	29.1	41.8	25.3	48.9	–
Carbon Monoxide Poisoning	–	–	–	–	1.2	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	473.7	418.3	439.3	229.3	478.4	269.2	326.0	555.4	371.2
Ciguatera Fish Poisoning	–	–	–	–	1.4	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	–	–	–	1.6	–	–	–	–
Cyclosporiasis	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	1.6	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	6.8	7.3	–	7.2	–	–	–	–
Gonorrhea (Excluding Neonatal Conjunctivitis)	231.7	139.6	188.8	45.0	153.9	53.6	67.4	116.4	–
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–
Hepatitis A	–	–	–	–	–	–	–	–	–
Hepatitis B, Acute	–	–	–	–	1.9	–	–	–	–
Hepatitis B, Chronic	–	20.2	22.5	14.8	24.9	–	–	16.1	48.2
Hepatitis B, Pregnant Women	–	–	–	–	3.8	–	–	–	–
Hepatitis C, Acute	–	–	–	–	2.2	–	–	–	–
Hepatitis C, Chronic (Including Perinatal)	–	89.0	184.6	145.1	50.1	92.8	107.1	116.4	245.8
HIV[1]	–	11.8	11.5	–	43.6	–	–	–	–
Lead Poisoning Cases in Children <6 Years Old	–	–	–	–	59.2	–	–	–	–
Lead Poisoning Cases in People >=6 Years Old	–	–	–	–	4.7	44.2	–	–	–
Legionellosis	–	–	–	–	2.3	–	–	–	–
Listeriosis	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–
Pertussis	–	–	–	–	0.8	–	–	–	–
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	–	21.5	61.4	38.5	16.5	–	25.3	41.8	–
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–
Salmonellosis	–	28.9	35.5	66.8	32.5	–	69.8	50.9	–
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	–	–	–	–	6.3	–	–	–	–
Shigellosis	–	18.9	18.6	–	10.6	–	–	26.7	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	–	–	–	2.0	–	–	–	–
Syphilis (Excluding Congenital)	–	53.3	30.4	21.2	101.2	35.3	–	17.6	–
Syphilis, Congenital	–	–	–	–	77.4	–	–	–	–
Tuberculosis	–	–	–	–	4.4	–	–	–	–
Varicella (Chickenpox)	–	–	–	–	3.2	–	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	0.9	–	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	1	–	–	–	–

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Orange	Osceola	Palm Beach	Pasco	Pinellas	Polk	Putnam	Santa Rosa	Sarasota
Campylobacteriosis	15.1	14.1	22.0	28.9	27.2	32.0	38.1	15.4	14.2
Carbon Monoxide Poisoning	–	–	–	–	–	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	724.2	471.9	418.7	314.7	456.0	523.4	527.1	276.3	278.2
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	2.0	–	–	–	3.5	5.6	–	–	–
Cyclosporiasis	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	4.3	–	6.0	4.6	4.2	4.3	–	–	4.8
Gonorrhea (Excluding Neonatal Conjunctivitis)	215.1	105.4	101.7	83.7	148.4	127.9	200.2	49.6	88.2
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–
Hepatitis A	6.8	–	–	12.7	11.6	–	–	–	–
Hepatitis B, Acute	3.1	–	4.2	11.2	5.4	–	–	–	–
Hepatitis B, Chronic	33.3	19.7	23.6	22.9	24.7	13.8	31.3	14.8	13.9
Hepatitis B, Pregnant Women	9.3	–	17.9	–	–	–	–	–	–
Hepatitis C, Acute	2.0	–	2.7	4.0	4.1	–	–	–	–
Hepatitis C, Chronic (Including Perinatal)	130.5	77.4	92.2	168.1	137.0	59.9	126.7	78.6	100.7
HIV[1]	36.5	28.9	20.7	11.4	18.7	16.6	–	–	7.7
Lead Poisoning Cases in Children <6 Years Old	27.5	–	81.8	–	44.4	110.2	–	–	–
Lead Poisoning Cases in People >=6 Years Old	4.7	–	4.9	9.1	12.4	10.7	–	–	–
Legionellosis	3.3	–	1.5	4.0	2.7	4.0	–	–	6.0
Listeriosis	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–
Pertussis	–	–	1.7	5.0	3.3	–	–	–	–
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	5.0	12.8	16.5	40.7	13.4	33.6	–	26.8	13.5
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–
Salmonellosis	28.0	25.8	39.0	29.1	24.0	38.3	72.2	37.6	29.6
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	4.5	–	4.6	–	–	6.3	–	–	–
Shigellosis	10.0	–	4.6	–	4.1	3.1	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	1.5	–	2.2	–	–	–	–	–	–
Syphilis (Excluding Congenital)	74.9	41.6	33.1	14.5	45.3	32.6	27.2	–	43.8
Syphilis, Congenital	–	–	–	–	–	–	–	–	–
Tuberculosis	4.9	–	2.4	–	3.4	–	–	–	–
Varicella (Chickenpox)	3.0	5.5	3.6	–	6.9	6.0	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	–	–	–	–	–

– Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2018

Reportable disease/condition	Seminole	St. Johns	St. Lucie	Sumter	Suwannee	Taylor	Union	Volusia	Wakulla	Walton	Washington
Campylobacteriosis	12.7	18.2	30.5	21.5	–	–	–	11.6	–	–	–
Carbon Monoxide Poisoning	–	–	–	–	–	–	–	–	–	–	–
Chlamydia (Excluding Neonatal Conjunctivitis)	427.9	301.4	427.9	186.8	520.8	417.8	526.1	394.6	417.3	381.3	356.5
Ciguatera Fish Poisoning	–	–	–	–	–	–	–	–	–	–	–
Creutzfeldt-Jakob Disease (CJD)	–	–	–	–	–	–	–	–	–	–	–
Cryptosporidiosis	–	–	–	–	–	–	–	–	–	–	–
Cyclosporiasis	–	–	–	–	–	–	–	–	–	–	–
Dengue Fever	–	–	–	–	–	–	–	–	–	–	–
Ehrlichiosis	–	–	–	–	–	–	–	–	–	–	–
Giardiasis, Acute	–	–	–	–	–	–	–	–	–	–	–
Gonorrhea (Excluding Neonatal Conjunctivitis)	139.3	74.9	99.1	67.6	121.9	166.2	–	141.3	176.2	144.3	182.2
Haemophilus influenzae Invasive Disease in Children <5 Years Old	–	–	–	–	–	–	–	–	–	–	–
Hepatitis A	6.5	–	–	–	–	–	–	–	–	–	–
Hepatitis B, Acute	–	–	–	–	–	–	–	6.9	–	–	–
Hepatitis B, Chronic	15.1	10.8	24.6	–	–	–	388.3	24.2	–	–	87.2
Hepatitis B, Pregnant Women	–	–	–	–	–	–	–	–	–	–	–
Hepatitis C, Acute	–	–	–	–	–	–	–	–	–	–	–
Hepatitis C, Chronic (Including Perinatal)	64.7	96.5	159.8	216.3	101.9	152.8	3,764.2	144.1	111.3	107.5	899.3
HIV[1]	16.2	–	16.7	–	–	–	–	16.1	–	–	–
Lead Poisoning Cases in Children <6 Years Old	–	–	–	–	–	–	–	–	–	–	–
Lead Poisoning Cases in People >=6 Years Old	–	–	–	–	–	–	–	–	–	–	–
Legionellosis	–	–	–	–	–	–	–	–	–	–	–
Listeriosis	–	–	–	–	–	–	–	–	–	–	–
Lyme Disease	–	–	–	–	–	–	–	–	–	–	–
Malaria	–	–	–	–	–	–	–	–	–	–	–
Meningitis, Bacterial or Mycotic	–	–	–	–	–	–	–	–	–	–	–
Mercury Poisoning	–	–	–	–	–	–	–	–	–	–	–
Mumps	–	–	–	–	–	–	–	–	–	–	–
Pertussis	–	–	–	–	–	–	–	–	–	–	–
Pesticide-Related Illness and Injury, Acute	–	–	–	–	–	–	–	–	–	–	–
Rabies, Animal	–	–	–	–	–	–	–	–	–	–	–
Rabies, Possible Exposure	28.9	37.3	39.4	16.7	44.3	–	–	25.1	–	–	–
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	–	–	–	–	–	–	–	–	–	–	–
Salmonellosis	26.3	51.8	49.5	27.0	62.1	–	–	38.3	–	44.2	–
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	–	–	–	–	–	–	–	–	–	–	–
Shigellosis	–	19.5	–	–	–	–	–	11.8	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	–	–	–	–	–	–	–	–	–	–	–
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	–	–	–	–	–	–	–	–	–	–	–
Syphilis (Excluding Congenital)	28.3	14.9	37.7	–	–	–	175.4	24.4	–	–	–
Syphilis, Congenital	–	–	–	–	–	–	–	–	–	–	–
Tuberculosis	–	–	–	–	–	–	–	–	–	–	–
Varicella (Chickenpox)	–	–	6.6	–	–	–	–	7.7	–	–	–
Vibriosis (Excluding Cholera)	–	–	–	–	–	–	–	–	–	–	–
West Nile Virus Disease	–	–	–	–	–	–	–	–	–	–	–
Zika Virus Disease and Infection	–	–	–	–	–	–	–	–	–	–	–

– Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 97 Florida Department of Corrections cases.

Appendix II: Data Sources

Data presented in this report are based on reportable disease information received by county and state health department staff from physicians, hospitals and laboratories throughout the state obtained through passive and active surveillance. Notifying the Department of cases of reportable diseases and conditions in the state of Florida is mandated under section 381.0031, Florida Statutes and Florida Administrative Code Chapter 64D-3. Laboratories, hospitals, medical facilities or other facilities providing health services (which can include schools, nursing homes and state institutions) are required to report certain diseases and conditions and the associated laboratory test results as listed in the Table of Notifiable Diseases or Conditions to Be Reported, Florida Administrative Code Chapter 64D-3. Reporting of test results by a laboratory does not nullify a practitioner's obligation to report the disease or condition. These data are the basis for providing useful information on reportable diseases and conditions in Florida to health care workers and policymakers and would not be possible without the cooperation of the extensive network involving both private and public sector participants. Data in this report are collected by a variety of means described on the following page.

Case-based passive surveillance is the most common surveillance approach for reportable diseases. Passive surveillance relies on physicians, laboratories and other health care providers to report diseases to the Department confidentially in one of three forms: electronically, by telephone or by facsimile. Increasingly, information about cases of reportable diseases and conditions is passed from providers, especially laboratories, to the Department as electronic records. This occurs automatically, without the involvement of a person once the electronic transmission process has been established between the Department and the reporting partner. Case-based reporting implies that some action is taken for every case, such as interviewing the case to identify risk factors or detect outbreaks.

Laboratory-based surveillance is when laboratory data are used to assess trends. In Florida, laboratory-based surveillance is used to monitor antimicrobial resistance patterns in the community and is the primary means of monitoring diseases such as chronic hepatitis. Laboratories participating in electronic laboratory reporting (ELR) are required to submit antimicrobial resistance testing for a variety of bacteria. These laboratories are also required to submit all positive and negative results to the Department for hepatitis viruses, human papillomavirus, influenza virus, respiratory syncytial virus (RSV) and *Staphylococcus aureus*. Individual cases of these diseases are not investigated (except for acute hepatitis infections); surveillance relies entirely on laboratory results. Additionally, the CDC's National Respiratory and Enteric Virus Surveillance System (NREVSS) is a laboratory-based system used to monitor temporal and geographic circulation patterns of RSV and other respiratory viruses in Florida.

Sentinel surveillance is when a sample of providers or laboratories are used to represent a wider population. ILINet is a nationwide surveillance system of sentinel providers, predominately outpatient health care providers, to monitor influenza and influenza-like illness (ILI) in the community.

Syndromic surveillance uses existing health-related data that precede diagnosis to identify cases of reportable diseases that would have otherwise gone unreported, identify outbreaks, monitor health trends in the community and provide situational awareness during public health responses. Florida uses the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE-FL) to monitor influenza, ILI and RSV trends across the state through chief complaints and discharge diagnoses from participating emergency departments and urgent care centers.

Registries are another passive surveillance approach. The Florida Cancer Data System (FCDS) is Florida's legislatively mandated population-based statewide cancer registry. All hospital and outpatient facilities licensed in Florida must report each patient admitted for treatment of cancer to the Department. The Florida Birth Defects Registry (FBDR) is a passive statewide population-based surveillance system. FBDR utilizes and links multiple datasets, including vital statistics and hospital records, to identify infants with birth defects.

Active surveillance entails Department staff regularly contacting hospitals, laboratories and physicians in an effort to identify all cases of a given disease or condition. This approach can be used in outbreak situations or to support an event or case investigation of urgent public health importance.

Appendix III: Interpreting the Data

Information in this report should be interpreted in light of the limitations below.

1: Under-Reporting

The data presented in this report are primarily based on passive reporting by health care providers and laboratories across Florida. Case reporting is most often dependent upon a person becoming ill, seeking medical attention, the health care provider ordering laboratory testing and finally the health care provider or laboratory reporting the case. Frequently, not all steps in this process occur, so the number of reported cases represents a fraction of the true number of cases of reportable illnesses occurring in Florida each year. Evaluations of infectious disease reporting systems have indicated that the completeness of reporting varies by disease. The less common but more severe reportable diseases such as bacterial meningitis, diphtheria, polio, botulism, anthrax, tuberculosis and congenital syphilis are more completely reported than the more common diseases with less severe symptoms such as hepatitis A or campylobacteriosis. Variation in identified disease incidence at the local level probably reflects, to varying degrees, both differences in the true incidence of disease and differences in the vigor with which surveillance is performed.

2: Reliability of Rates

All incidence rates in this report are expressed as the number of reported cases of a disease or condition per 100,000 population unless otherwise specified. All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS), a Department Web-based data query system with community tools, health indicators and data queries for public consumption (www.FLHealthCHARTS.com). Population estimates within CHARTS are provided by the Department of Health Division of Public Health Statistics and Performance Management in consultation with the Florida Legislature's Office of Economic and Demographic Research. Estimates in CHARTS are updated at least once per year, and population data were extracted from CHARTS for this report on July 29, 2019. Note that previous editions of this report may show somewhat different populations for a given year than the ones shown here, as these estimates are revised periodically. Revisions to population estimates can also impact disease rates.

Animal rabies is not expressed as a rate; it is only expressed as the number of cases because no reliable denominators exist for animal populations.

Rates for diseases with only a few cases reported per year can be unstable and should be interpreted with caution. The observation of zero events is especially difficult to interpret. Rates were not generally calculated in this report when there were less than 20 cases, except as part of graphs and maps. In some cases, even though maps and graphs (e.g., by year, gender, race) may have small individual counts, rates were calculated. These maps include footnotes as a reminder that rates based on less than 20 cases are not reliable.

3: Determining How Cases Are Counted: Reporting Period and Cases Included

Unless otherwise noted, confirmed and probable cases reported in Florida residents are included in this report. There are important differences by disease that determine how cases are counted and summarized in this report. The date of illness onset or the date of diagnosis may not be available for all cases. Cases reported early in 2018 may have actually had onset or diagnosis in 2017; rarely, cases reported in 2018 may have onset or diagnosis dates prior to 2017. Additionally, cases with illness onset or diagnosis late in 2018 may not have been reported to public health by the end of the 2018 report year and thus would not be included in this report for most diseases. Information by disease is listed on the following page.

Appendices

AIDS and HIV diagnoses

Year: Data are aggregated by calendar year.

Diagnoses included: HIV diagnoses are based on the date, county of residence and state of residence of the first confirmed HIV test. AIDS diagnoses are based on the date, county of residence and state of residence of the first CD4 count below 200 cells/mm^3 or AIDS-defining opportunistic infection in a person with HIV. The 2018 HIV and AIDS diagnosis dataset was frozen on June 30, 2019. Changes occurring after that point that affect the number of cases in 2018 or earlier will be updated in the following year's dataset.

Please note that prior to 2014, HIV and AIDS diagnoses were assigned to a report year based on the date the case was entered into the surveillance system. For more information about how AIDS and HIV diagnoses are counted, please see the HIV Data Center website (FloridaHealth.gov/diseases-and-conditions/aids/surveillance/index.html).

Sexually transmitted diseases (STDs)

Year: Data are aggregated by calendar year.

Cases included: Cases are assigned to a report year based on the date the case was entered into the surveillance system. Occasionally, STD reports are received after the end of the reporting year that should have been included based on the laboratory result date. For these cases, the laboratory result date is used for the report date.

Tuberculosis

Year: Data are aggregated by calendar year.

Cases included: Cases are assigned to a report year based on the date when the suspected diagnosis is confirmed by clinical, radiographic and laboratory testing (often referred to as "date counted").

Zika virus disease and infection (including congenital)

Year: Data are aggregated by the standard reporting year as outlined by the Centers for Disease Control and Prevention (CDC), where every year has 52 or 53 weeks (there were 52 weeks in 2018). This is referred to as the Morbidity and Mortality Weekly Report (MMWR) year.

Cases included: Cases are assigned to a report year based on the earliest date associated with the case (onset date, diagnosis date, laboratory report date or date the Department was notified of the case). In the surveillance application, Merlin, this is referred to as "event date."

All other diseases

Year: Data are aggregated by MMWR year (see above for explanation of MMWR year).

Cases included: Cases are assigned to a report year based on the date the case was determined to have enough information to be submitted by county health department epidemiology staff to the Department of Health Bureau of Epidemiology (BOE) for state-level review. In the surveillance application, Merlin, this is referred to as "date reported to BOE."

Disease-specific reports describing data by other dates, such as disease onset and diagnosis dates, may also be published and available on the Department website; numbers may vary from this report based on different inclusion criteria.

4: Case Definitions

Cases of most diseases are classified as confirmed, probable or suspect at the state level using a published set of surveillance case definitions consistent with national case definitions where appropriate (Surveillance Case Definitions for Selected Reportable Diseases in Florida, available at FloridaHealth.gov/DiseaseCaseDefinitions). Case classifications are reviewed at the state level for most diseases. Following CDC MMWR print criteria (available at www.cdc.gov/nndss/script/downloads.aspx), only confirmed and probable cases have been included in this report unless otherwise specified (i.e., suspect cases are excluded).

Changes to case definitions can affect the number of cases reported, which can impact calculated incidence rates, but ultimately case definition changes do not change the true incidence of a disease. Each year case definitions are evaluated for necessary revisions. A number of changes were made to reportable disease case definitions in 2018 as a result of position statements approved by the Council of State and Territorial Epidemiologists (CSTE) in 2017.

Summary of case definition changes effective January 2018:

a. Anthrax:
   - Revised laboratory diagnostics
   - Added infections with *Bacillus cereus* strains that express anthrax toxin genes
   - Clarified terms for types of anthrax
   - Refined signs and symptoms

b. Cryptosporidiosis: clarified which symptoms meet the clinical criteria for case classification

c. Giardiasis: clarified which symptoms meet the clinical criteria for case classification

d. Hepatitis A: added nucleic acid amplification test as a confirmatory laboratory test in the absence of clinical signs or symptoms

e. Hepatitis B, acute and chronic:
   - Excluded children ≤24 months old unless the mother was known not to be infected with hepatitis B virus
   - Removed negative to positive result conversion for acute hepatitis B

f. Hepatitis C, perinatal:
   - Expanded laboratory criteria to include hepatitis C virus antigen test (if and when an FDA-approved test becomes available)
   - Updated the epidemiologic criteria

g. Hepatitis C, acute and chronic:
   - Clarified laboratory criteria
   - Excluded children ≤36 months old unless the child is known to have been exposed to hepatitis C virus via a mechanism other than perinatal transmission

h. Legionellosis: replaced a fourfold increase in antibody titers with a single elevated antibody titer in the supportive laboratory criteria

i. Listeriosis: added new suspect case classification for clinically compatible illnesses in people with positive culture-independent diagnostic testing (CIDT)

j. Shiga toxin-producing *Escherichia coli*:

- Added new probable case classification for clinically compatible illnesses in people with positive CIDT
- Removed the clinical compatibility requirement from suspect case classification for people with CIDT

5: Assigning Cases to Counties

Cases are assigned to Florida counties following national guidance and based on the county of residence at the time of the disease identification, regardless of where they became ill or were hospitalized, diagnosed or exposed. Cases who reside outside of Florida are not counted as Florida cases regardless of whether they became ill or were hospitalized, diagnosed or exposed in Florida. Zika virus disease and infection cases do include residents of other states; however cases of other diseases in out-of-state residents are not included in this report unless specifically noted. These cases are referred through an interstate reciprocal notification system to the state where the person resides.

6: Population Estimates

All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS), a Department Web-based data query system with community tools, health indicators and data queries for public consumption (FLHealthCHARTS.com). Population estimates within CHARTS are provided by the Department of Health Division of Public Health Statistics and Performance Management in consultation with the Florida Legislature's Office of Economic and Demographic Research. Estimates in CHARTS are updated at least once per year, and population data were extracted from CHARTS for this report on July 29, 2019. Note that previous editions of this report may show somewhat different populations for a given year than the ones shown here, as these estimates are revised periodically. Revisions to population estimates can also impact disease rates.

7: Florida Disease Codes in Merlin

Reported case data for most reportable diseases (excluding HIV/AIDS, STDs and tuberculosis) are stored in Merlin, Florida's Web-based reportable disease surveillance system. When entering case data into Merlin, users assign a Florida Disease Code based on the disease. Due to changes in case definitions over time, new codes have been added and outdated codes have expired. In addition, some diseases have multiple disease codes that represent different clinical manifestations.

Diseases that include cases from multiple or expired Florida Disease Codes in this report:

a. Amebic Infections
Amebic Infections (*Acanthamoeba*) - 13621
Amebic Infections (*Balamuthia mandrillaris*) - 13625
Amebic Infections (*Naegleria fowleri*) - 13629
Amebic Encephalitis - 13620 (EXPIRED)

b. California Serogroup Virus Disease
California Serogroup Virus Neuroinvasive Disease - 06250
California Serogroup Virus Non-Neuroinvasive Disease - 06251

c. Dengue Fever
Dengue Fever - 06100
Dengue Fever, Severe - 06101

d. Eastern Equine Encephalitis
   Eastern Equine Encephalitis Neuroinvasive Disease - 06220
   Eastern Equine Encephalitis Non-Neuroinvasive Disease - 06221

e. Ehrlichiosis
   Ehrlichiosis (*Ehrlichia ewingii*) - 08383
   Ehrlichiosis, HME (*Ehrlichia chaffeensis*) - 08382

f. Hantavirus Infection
   Hantavirus Infection, Non-Pulmonary Syndrome - 07870
   Hantavirus Pulmonary Syndrome - 07869

g. Plague
   Plague, Bubonic - 02000
   Plague, Pneumonic - 02050

h. Poliomyelitis
   Poliomyelitis, Nonparalytic - 04520
   Poliomyelitis, Paralytic - 04590

i. Q Fever (*Coxiella burnetii*)
   Q Fever, Acute (*Coxiella burnetii*) - 08301
   Q Fever, Chronic (*Coxiella burnetii*) - 08302

j. Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis
   Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis - 08309
   Rocky Mountain Spotted Fever - 08200 (EXPIRED)

k. Rubella
   Rubella - 05690
   Rubella, Congenital Syndrome - 77100

l. Salmonellosis
   Paratyphoid Fever (*Salmonella* Serotypes Paratyphi A, B, C) - 00210
   Salmonellosis - 00300

m. St. Louis Encephalitis
   St. Louis Encephalitis Neuroinvasive Disease - 06230
   St. Louis Encephalitis Non-Neuroinvasive Disease - 06231

n. Typhus Fever
   Typhus Fever, Epidemic (*Rickettsia prowazekii*) - 08000
   Typhus Fever, Endemic (*Rickettsia typhi*) - 08100 (EXPIRED)

o. Venezuelan Equine Encephalitis
   Venezuelan Equine Encephalitis Neuroinvasive Disease - 06620
   Venezuelan Equine Encephalitis Non-Neuroinvasive Disease - 06621

p. Vibriosis (Excluding Cholera)
   Vibriosis (*Grimontia hollisae*) - 00196
   Vibriosis (*Vibrio algino*lyticus) - 00195

q. Viral Hemorrhagic Fever
   Crimean-Congo Hemorrhagic Fever - 06591
   Ebola Hemorrhagic Fever - 06592
   Guanarito Hemorrhagic Fever - 06593
   Junin Hemorrhagic Fever - 06594
   Lassa Fever - 06595
   Lujo Virus - 06596
   Machupo Hemorrhagic Fever - 06597
   Marburg Fever - 06598
   Sabia-Associated Hemorrhagic Fever - 06599
   Viral Hemorrhagic Fever - 06590 (EXPIRED)

r. West Nile Virus Disease
   West Nile Virus Neuroinvasive Disease - 06630
   West Nile Virus Non-Neuroinvasive Disease - 06631

s. Western Equine Encephalitis
   Western Equine Encephalitis Neuroinvasive Disease - 06210
   Western Equine Encephalitis Non-Neuroinvasive Disease - 06211

Appendix IV: Report Terminology

Section 1: Data Summaries for Common Reportable Diseases/Conditions and Section 2: Narratives for Uncommon Reportable Diseases/Conditions each include tables and figures that summarize characteristics of cases. Those characteristics are defined below.

Case classification: all cases are classified as confirmed or probable according to the surveillance case definition based on clinical, laboratory and epidemiologic information. Current and historical case definitions can be found here: FloridaHealth.gov/DiseaseCaseDefinitions.

Hospitalized: a person with a reportable disease was hospitalized, though the hospitalization may not necessarily have been due to the reportable disease or condition.

Died: A person with a reportable disease or condition died, though the death may not necessarily have been due to the illness and may have occurred after the illness.

Sensitive situation: settings where people with certain diseases may be more likely to infect others. For example, a food handler with an enteric illness like salmonellosis may contaminate food and infect people who eat the food. In this report, sensitive situations include daycare staff and attendees, health care workers and food handlers.

Imported status: where a person was most likely exposed to the organism or environment that caused the reportable disease or condition. Note that Puerto Rico and the U.S. Virgin Islands are U.S. territories and are included in the category “acquired in the U.S., not Florida.”

Outbreak status: two or more cases that are epidemiologically linked are considered outbreak-associated, unless otherwise noted.

Month of occurrence: determined by the earliest date associated with the case, which is most frequently the date of onset, but can also be the diagnosis date, the laboratory report date or the date the county health department was notified of the case.

Appendix V: List of Reportable Diseases/Conditions in Florida, 2018

Subsection 381.0031(2), Florida Statutes, provides that "Any practitioner licensed in this state to practice medicine, osteopathic medicine, chiropractic medicine, naturopathy, or veterinary medicine; any hospital licensed under part I of Chapter 395, Florida Statutes; or any laboratory licensed under Chapter 483, Florida Statutes that diagnoses or suspects the existence of a disease of public health significance shall immediately report the fact to the Department of Health." This list of reportable diseases and conditions is maintained in Florida Administrative Code Rule 64D-3.029. The Rule was last revised in October 2016. The list below reflects the diseases and conditions that were reportable in 2018.

Any disease outbreak
Any grouping or clustering of disease
Acquired immune deficiency syndrome (AIDS)
Amebic encephalitis
Anthrax
Arsenic poisoning
Arboviral diseases not otherwise listed
Babesiosis
Botulism
Brucellosis
California serogroup virus disease
Campylobacteriosis
Cancer (excluding non-melanoma skin cancer and including benign and borderline intracranial and CNS tumors)
Carbon monoxide poisoning
Chancroid
Chikungunya fever
Chlamydia
Cholera (*Vibrio cholerae* type O1)
Ciguatera fish poisoning
Congenital anomalies
Conjunctivitis in neonates <14 days old
Creutzfeldt-Jakob disease (CJD)
Cryptosporidiosis
Cyclosporiasis
Dengue fever
Diphtheria
Eastern equine encephalitis
Ehrlichiosis/anaplasmosis
Giardiasis, acute
Glanders
Gonorrhea
Granuloma inguinale
Haemophilus influenzae invasive disease in children <5 years old (all ages for electronic laboratory reporting laboratories)
Hansen's disease (leprosy)
Hantavirus infection
Hemolytic uremic syndrome (HUS)
Hepatitis A
Hepatitis B, C, D, E, and G
Hepatitis B surface antigen in pregnant women or children <2 years old
Herpes B virus, possible exposure
Herpes simplex virus (HSV) in infants <60 days old with disseminated infection and liver involvement; encephalitis; and infections limited to skin, eyes, and mouth; anogenital HSV in children <12 years old
Human immunodeficiency virus (HIV) infection
HIV, exposed infants <18 months old born to an HIV-infected woman
Human papillomavirus (HPV), associated laryngeal papillomas or recurrent respiratory papillomatosis in children <6 years old; anogenital papillomas in children <12 years old (all HPV DNA for electronic laboratory reporting laboratories)
Influenza A, novel or pandemic strains
Influenza-associated pediatric mortality in children <18 years old
Lead poisoning
Legionellosis
Leptospirosis
Listeriosis
Lyme disease
Lymphogranuloma venereum (LGV)
Malaria
Measles (rubeola)
Melioidosis
Meningitis, bacterial or mycotic
Meningococcal disease
Mercury poisoning
Mumps
Neonatal abstinence syndrome (NAS)
Neurotoxic shellfish poisoning
Paratyphoid fever (*Salmonella* serotypes Paratyphi A, B, C)
Pertussis
Pesticide-related illness and injury, acute
Plague
Poliomyelitis
Psittacosis (ornithosis)
Q Fever
Rabies (human, animal, possible exposure)
Ricin toxin poisoning
Rocky Mountain spotted fever and other spotted fever rickettsioses
Rubella
St. Louis encephalitis
Salmonellosis
Saxitoxin poisoning (paralytic shellfish poisoning)
Severe acute respiratory disease syndrome associated with coronavirus infection
Shiga toxin-producing *Escherichia coli* (STEC) infection
Shigellosis
Smallpox
Staphylococcal enterotoxin B poisoning
Staphylococcus aureus infection, intermediate or full resistance to vancomycin (VISA, VRSA)
Streptococcus pneumoniae invasive disease in children <6 years old (all ages for electronic laboratory reporting laboratories)
Syphilis
Tetanus
Trichinellosis (trichinosis)
Tuberculosis (TB)
Tularemia
Typhoid fever (*Salmonella* serotype Typhi)
Typhus fever, epidemic
Vaccinia disease
Varicella (chickenpox)
Venezuelan equine encephalitis
Vibriosis (infections of *Vibrio* species and closely related organisms, excluding *Vibrio cholerae* type O1)
Viral hemorrhagic fevers
West Nile virus disease
Yellow fever
Zika fever

Electronic laboratory reporting laboratories only:
Antimicrobial resistance results for isolates from a normally sterile site for *Acinetobacter baumannii*, *Citrobacter* species, *Enterococcus* species, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Pseudomonas aeruginosa*, and *Serratia* species
Hepatitis B, C, D, E, and G viruses, all test results (positive and negative) and all liver function tests
Influenza virus, all test results (positive and negative)
Respiratory syncytial virus, all test results (positive and negative)
Staphylococcus aureus isolated from a normally sterile site

Appendix VI: Florida County Boundaries

Appendix VII: Florida Population Estimates

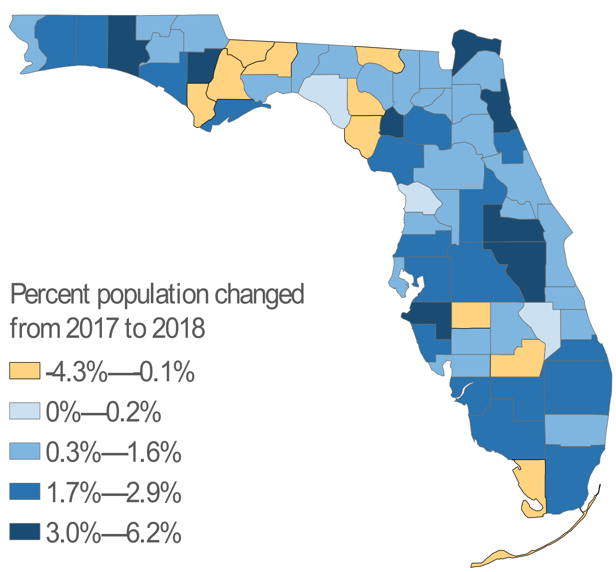
The estimated population in 2018 increased 2.0% from 2017. Note that increases are not uniform across all demographic groups, though increases occurred in most demographic groups. The increase was very similar between males and females, but was notably higher for Hispanics and other races. The largest increases were in older age groups, particularly adults 65 to 84 years old. Population decreased for infants <1 year old and young adults 20 to 24 years old. Population decreases from 2017 to 2018 were observed in 10 counties, ranging from −0.3% to −4.3%. Increases in the remaining 57 counties varied from 0.1% to 6.2%.

Year	Population
2009	18,711,844
2010	18,820,280
2011	18,941,742
2012	19,118,938
2013	19,314,396
2014	19,579,871
2015	19,897,762
2016	20,231,092
2017	20,555,733
2018	20,957,705

All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS), a Department Web-based data query system with community tools, health indicators and data queries for public consumption (www.FLHealthCHARTS.com). Population estimates within CHARTS are provided by the Department of Health Division of Public Health Statistics and Performance Management in consultation with the Florida Legislature's Office of Economic and Demographic Research. Estimates in CHARTS are updated at least once per year, and population data were extracted from CHARTS for this report on July 29, 2019. Note that previous editions of this report may show somewhat different populations for a given year than the ones shown here, as these estimates are revised periodically. Revisions to population estimates can also impact disease rates.

Gender	2017 Population	2018 Population	Percent Change
Female	10,512,814	10,713,412	+1.9%
Male	10,042,919	10,244,293	+2.0%
Race	**2017 Population**	**2018 Population**	**Percent Change**
White	15,944,707	16,219,736	+1.7%
Black	3,470,105	3,549,464	+2.3%
Other	1,140,921	1,188,505	+4.2%
Ethnicity	**2017 Population**	**2018 Population**	**Percent Change**
Non-Hispanic	15,419,874	15,564,588	+0.9%
Hispanic	5,135,859	5,393,117	+5.0%
Age	**2017 Population**	**2018 Population**	**Percent Change**
<1	219,916	216,673	-1.5%
1–4	904,109	921,248	+1.9%
5–9	1,140,565	1,150,878	+0.9%
10–14	1,151,511	1,180,476	+2.5%
15–19	1,186,803	1,202,971	+1.4%
20–24	1,271,555	1,269,099	-0.2%
25–34	2,679,629	2,743,684	+2.4%
35–44	2,460,078	2,517,785	+2.3%
45–54	2,749,785	2,765,696	+0.6%
55–64	2,717,927	2,791,864	+2.7%
65–74	2,266,620	2,333,906	+3.0%
75–84	1,254,557	1,310,623	+4.5%
85+	552,678	552,802	+0.0%
Total	**20,555,733**	**20,957,705**	**+2.0%**

Larger population increases were clustered in the western part of the Panhandle as well as central and south Florida. Population decreases were primarily clustered in the central and eastern parts of the Panhandle.



Appendices

County	2017 Population	2018 Population	Percent Change
Alachua	259,349	263,753	+1.7%
Baker	27,066	27,488	+1.6%
Bay	178,953	182,218	+1.8%
Bradford	27,808	28,083	+1.0%
Brevard	576,970	584,050	+1.2%
Broward	1,884,545	1,903,210	+1.0%
Calhoun	14,658	15,315	+4.5%
Charlotte	173,954	175,413	+0.8%
Citrus	144,922	145,164	+0.2%
Clay	210,767	213,565	+1.3%
Collier	358,506	367,471	+2.5%
Columbia	69,250	69,566	+0.5%
DeSoto	35,454	35,940	+1.4%
Dixie	17,040	16,767	-1.6%
Duval	942,841	954,454	+1.2%
Escambia	312811	317051	+1.4%
Flagler	106076	108481	+2.3%
Franklin	12,006	12,360	+2.9%
Gadsden	48,690	48,173	-1.1%
Gilchrist	16,977	17,578	+3.5%
Glades	13,263	13,193	-0.5%
Gulf	16,957	16,235	-4.3%
Hamilton	14,749	14,706	-0.3%
Hardee	27,675	27,436	-0.9%
Hendry	38,675	39,682	+2.6%
Hernando	183,065	185,421	+1.3%
Highlands	102,590	103,317	+0.7%
Hillsborough	1,388,111	1,419,285	+2.2%
Holmes	20,132	20,404	+1.4%
Indian River	149,930	152,079	+1.4%
Jackson	50,303	50,689	+0.8%
Jefferson	14,530	14,725	+1.3%
Lafayette	8,651	8,367	-3.3%
Lake	333,598	342,356	+2.6%
State total	20,555,733	20,957,705	+2.0%

County	2017 Population	2018 Population	Percent Change
Lee	700,837	721,053	+2.9%
Leon	291,879	290,223	-0.6%
Levy	40,832	41,550	+1.8%
Liberty	8,839	8,781	-0.7%
Madison	19,295	19,420	+0.6%
Manatee	367,130	381,071	+3.8%
Marion	352,067	355,325	+0.9%
Martin	152,333	155,705	+2.2%
Miami-Dade	2,754,749	2,804,160	+1.8%
Monroe	77,300	76,534	-1.0%
Nassau	79,592	83,125	+4.4%
Okaloosa	194,811	198,409	+1.8%
Okeechobee	41,469	41,492	+0.1%
Orange	1,317,704	1,370,447	+4.0%
Osceola	339,470	360,426	+6.2%
Palm Beach	1,411,054	1,442,281	+2.2%
Pasco	507,081	518,639	+2.3%
Pinellas	961,253	971,022	+1.0%
Polk	663,999	681,691	+2.7%
Putnam	73,068	73,422	+0.5%
Santa Rosa	171,851	175,552	+2.2%
Sarasota	407,501	415,896	+2.1%
Seminole	457,028	463,627	+1.4%
St. Johns	229,272	241,545	+5.4%
St. Lucie	299,962	304,743	+1.6%
Sumter	123,928	125,779	+1.5%
Suwannee	44,527	45,123	+1.3%
Taylor	22,220	22,258	+0.2%
Union	15,896	15,966	+0.4%
Volusia	525,121	532,926	+1.5%
Wakulla	32,134	32,350	+0.7%
Walton	65,724	67,926	+3.4%
Washington	24,935	25,243	+1.2%
State total	28,336,605	28,851,700	+1.8%

Appendices

Appendix VIII: References

The following references were used throughout this report.

American Academy of Pediatrics. (2018). Red Book: 2018 Report of the Committee on Infectious Diseases (31st ed.). Grove Village, IL: American Academy of Pediatrics.

Centers for Disease Control and Prevention. CDC A–Z Index. www.cdc.gov/az/a.html. Accessed October 2019.

Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. 13th ed. Washington, D.C.: Public Health Foundation; 2015. Available at www.cdc.gov/vaccines/pubs/pinkbook/index.html

Centers for Disease Control and Prevention. *Manual for the Surveillance of Vaccine-Preventable Diseases*. www.cdc.gov/vaccines/pubs/surv-manual/index.html. Accessed October 2019.

Centers for Disease Control and Prevention. *The Yellow Book: CDC Health Information for International Travel 2018*. New York, NY: Oxford University Press; 2017.

Heymann DL, ed. *Control of Communicable Diseases Manual*. 20th ed. Washington, D.C.: American Public Health Association Press; 2015.

Hill HA, Elam-Evans LD, Yankey D, Singleton JA, Kang Y. 2017. Vaccination coverage among children aged 19–35 months — United States, 2016. *Morbidity and Mortality Weekly Report*. 2017; 66(43):1171–1177. doi: 10.15585/mmwr.mm6539a4. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6643a3.htm.

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